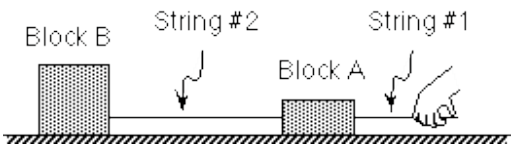
Student#: **NAME**

Two blocks of unequal mass ($m_A < m_B$) are connected by a string (string 2). The blocks are placed on a frictionless table and pulled by another string (string 1) that is attached to block A such that both blocks move together faster and faster. Assume both strings are inextensible and massless.



Q4: Compare the magnitude of the acceleration of block A to block B: aA > aB

Q5: Explain. It is pulling two masses

Q6: Compare the magnitude of $T_{\text{on A by 1}}$ to $T_{\text{on 1 by A}}$. T(on A by 1) = T(on 1 by A)

Q7: Explain. They are reaction forces, and therefore equal

Q8: Compare the magnitude of $T_{\text{on A by 2}}$ to $T_{\text{on B by 2}}$. T(on A by 2) = T(on B by 2)

Q9: Explain. They are reaction forces, and therefore equal in magnitude

Q10: Compare the magnitude of $T_{\text{on A by 1}}$ to $T_{\text{on B by 2}}$. T(on A by 1) < T(on B by 2)

Q11: Explain. Mass is B is greater and it takes more force to move the thing.

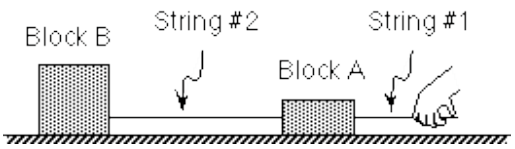
Consider the same situation as above. (Recall that there is no friction between the table and blocks.)

Q12. Determine the tension in string 2 if the hand exerts a force of 12 N, the mass of block A is 2 kg, and the mass of block B is 4 kg. (Only include the value in your answer; do not include units in your answer.) 8

Q13. Explain. I summed the forces for each block, and a was ewual so I used substituiton to solve for T.

Student#: **NAME**

Two blocks of unequal mass ($m_A < m_B$) are connected by a string (string 2). The blocks are placed on a frictionless table and pulled by another string (string 1) that is attached to block A such that both blocks move together faster and faster. Assume both strings are inextensible and massless.



Q4: Compare the magnitude of the acceleration of block A to block B: aA = aB

Q5: Explain. Both blocks will accelerate the same since they're in the same system.

Q6: Compare the magnitude of $T_{\text{on A by 1}}$ to $T_{\text{on 1 by A}}$. T(on A by 1) = T(on 1 by A)

Q7: Explain. They are newton's third law force pairs.

Q8: Compare the magnitude of $T_{\text{on A by 2}}$ to $T_{\text{on B by 2}}$. T(on A by 2) > T(on B by 2)

Q9: Explain. Because A is pulling on the string in the direction that the system is moving...

Q10: Compare the magnitude of $T_{\text{on A by 1}}$ to $T_{\text{on B by 2}}$. T(on A by 1) > T(on B by 2)

Q11: Explain. Because string 1 is pulling the whole system while string 2 is only pulling on B.

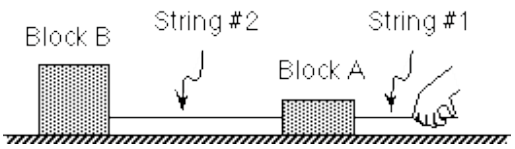
Consider the same situation as above. (Recall that there is no friction between the table and blocks.)

Q12. Determine the tension in string 2 if the hand exerts a force of 12 N, the mass of block A is 2 kg, and the mass of block B is 4 kg. (Only include the value in your answer; do not include units in your answer.) 40

Q13. Explain. The tension in string 2 = the mass of B * approximately 10 m/s^2 acceleration.

Student#: **NAME**

Two blocks of unequal mass ($m_A < m_B$) are connected by a string (string 2). The blocks are placed on a frictionless table and pulled by another string (string 1) that is attached to block A such that both blocks move together faster and faster. Assume both strings are inextensible and massless.



Q4: Compare the magnitude of the acceleration of block A to block B: aA = aB

Q5: Explain. Becuase theyre connected by rope and therefore must be considered a system which cannot have differnet accel. values for what makes it up

Q6: Compare the magnitude of $T_{\text{on A by 1}}$ to $T_{\text{on 1 by A}}$. T(on A by 1) > T(on 1 by A)

Q7: Explain. Because Its accelerating therefore the forces must not be equal

Q8: Compare the magnitude of $T_{\text{on A by 2}}$ to $T_{\text{on B by 2}}$. T(on A by 2) = T(on B by 2)

Q9: Explain. Tensions must be equal

Q10: Compare the magnitude of $T_{\text{on A by 1}}$ to $T_{\text{on B by 2}}$. T(on A by 1) > T(on B by 2)

Q11: Explain. Because this force is what makes the other force possible which means it would have to be greater

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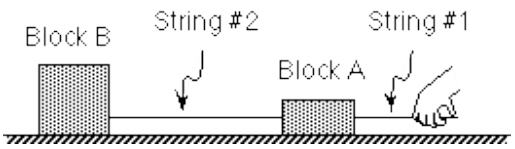
Consider the same situation as above. (Recall that there is no friction between the table and blocks.)

Q12. Determine the tension in string 2 if the hand exerts a force of 12 N, the mass of block A is 2 kg, and the mass of block B is 4 kg. (Only include the value in your answer; do not include units in your answer.) 8

Q13. Explain. F=ma where m is the combined mass and f = 12. Then you multiply the accel. by the mass and voila!

Student#: **NAME**

Two blocks of unequal mass ($m_A < m_B$) are connected by a string (string 2). The blocks are placed on a frictionless table and pulled by another string (string 1) that is attached to block A such that both blocks move together faster and faster. Assume both strings are inextensible and massless.



Q4: Compare the magnitude of the acceleration of block A to block B: aA = aB
Q5: Explain. F=ma, by this law the sum of the forces = mass * acceleration

Q6: Compare the magnitude of $T_{\text{on A by 1}}$ to $T_{\text{on 1 by A}}$. T(on A by 1) = T(on 1 by A)
Q7: Explain. They aer both equal because of newtons second law.

Q8: Compare the magnitude of $T_{\text{on A by 2}}$ to $T_{\text{on B by 2}}$. T(on A by 2) = T(on B by 2)
Q9: Explain. Block a is pulling b with the same force as the hand.

Q10: Compare the magnitude of $T_{\text{on A by 1}}$ to $T_{\text{on B by 2}}$. T(on A by 1) = T(on B by 2)
Q11: Explain. Same tension throught the system.

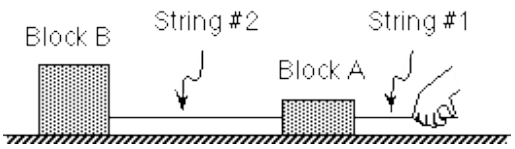
Consider the same situation as above. (Recall that there is no friction between the table and blocks.)

Q12. Determine the tension in string 2 if the hand exerts a force of 12 N, the mass of block A is 2 kg, and the mass of block B is 4 kg. (Only include the value in your answer; do not include units in your answer.) 12n

Q13. Explain. Block B experiences the same tension as A because the tension is even throught the system.

Student#: **NAME**

Two blocks of unequal mass ($m_A < m_B$) are connected by a string (string 2). The blocks are placed on a frictionless table and pulled by another string (string 1) that is attached to block A such that both blocks move together faster and faster. Assume both strings are inextensible and massless.



Q4: Compare the magnitude of the acceleration of block A to block B: aA > aB

Q5: Explain. b/c the force is the same and with less mass the acceleration of the system has to be greater in A than in B

Q6: Compare the magnitude of $T_{\text{on A by 1}}$ to $T_{\text{on 1 by A}}$. T(on A by 1) = T(on 1 by A)

Q7: Explain. newton's third law... If there was more force on the string applied by block A the string would snap

Q8: Compare the magnitude of $T_{\text{on A by 2}}$ to $T_{\text{on B by 2}}$. T(on A by 2) = T(on B by 2)

Q9: Explain. newton's third law

Q10: Compare the magnitude of $T_{\text{on A by 1}}$ to $T_{\text{on B by 2}}$. T(on A by 1) < T(on B by 2)

Q11: Explain. b/c the the force it takes to move block B has more force on the string that Block A

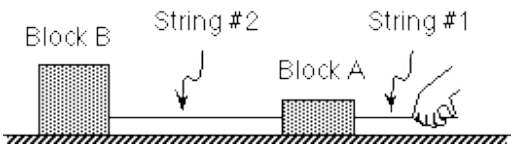
Consider the same situation as above. (Recall that there is no friction between the table and blocks.)

Q12. Determine the tension in string 2 if the hand exerts a force of 12 N, the mass of block A is 2 kg, and the mass of block B is 4 kg. (Only include the value in your answer; do not include units in your answer.) 12

Q13. Explain. b/c the tension of the string is going to be the same as force of the hand newton's third law

Student#: **NAME**

Two blocks of unequal mass ($m_A < m_B$) are connected by a string (string 2). The blocks are placed on a frictionless table and pulled by another string (string 1) that is attached to block A such that both blocks move together faster and faster. Assume both strings are inextensible and massless.



Q4: Compare the magnitude of the acceleration of block A to block B: aA = aB

Q5: Explain. A and B are one unit connected by the string

Q6: Compare the magnitude of $T_{\text{on A by 1}}$ to $T_{\text{on 1 by A}}$. T(on A by 1) > T(on 1 by A)

Q7: Explain. it is because the blocks are moving so the forces are not equal according to newtons second law

Q8: Compare the magnitude of $T_{\text{on A by 2}}$ to $T_{\text{on B by 2}}$. T(on A by 2) = T(on B by 2)

Q9: Explain. It is equal as it is the same string

Q10: Compare the magnitude of $T_{\text{on A by 1}}$ to $T_{\text{on B by 2}}$. T(on A by 1) > T(on B by 2)

Q11: Explain. Because t1 has to pull to masses while b only has to pull one.

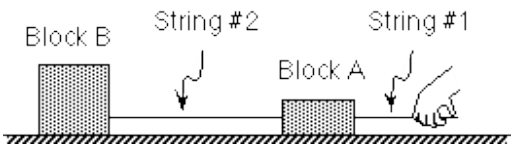
Consider the same situation as above. (Recall that there is no friction between the table and blocks.)

Q12. Determine the tension in string 2 if the hand exerts a force of 12 N, the mass of block A is 2 kg, and the mass of block B is 4 kg. (Only include the value in your answer; do not include units in your answer.) 12

Q13. Explain. no froction means the only force present is the force of the hand

Student#: **NAME**

Two blocks of unequal mass ($m_A < m_B$) are connected by a string (string 2). The blocks are placed on a frictionless table and pulled by another string (string 1) that is attached to block A such that both blocks move together faster and faster. Assume both strings are inextensible and massless.



Q4: Compare the magnitude of the acceleration of block A to block B: aA = aB
Q5: Explain. they move at the same velocity with respect to each other

Q6: Compare the magnitude of $T_{\text{on A by 1}}$ to $T_{\text{on 1 by A}}$. T(on A by 1) < T(on 1 by A)
Q7: Explain. block b has more mass

Q8: Compare the magnitude of $T_{\text{on A by 2}}$ to $T_{\text{on B by 2}}$. T(on A by 2) < T(on B by 2)
Q9: Explain. block b has more mass

Q10: Compare the magnitude of $T_{\text{on A by 1}}$ to $T_{\text{on B by 2}}$. T(on A by 1) < T(on B by 2)
Q11: Explain. block b has more mass

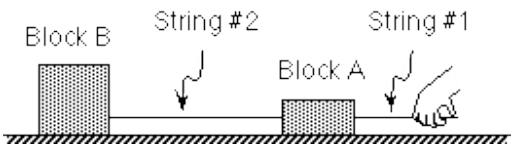
Consider the same situation as above. (Recall that there is no friction between the table and blocks.)

Q12. Determine the tension in string 2 if the hand exerts a force of 12 N, the mass of block A is 2 kg, and the mass of block B is 4 kg. (Only include the value in your answer; do not include units in your answer.) 27

Q13. Explain. the way the forces act on each other make it out to be 27

Student#: **NAME**

Two blocks of unequal mass ($m_A < m_B$) are connected by a string (string 2). The blocks are placed on a frictionless table and pulled by another string (string 1) that is attached to block A such that both blocks move together faster and faster. Assume both strings are inextensible and massless.



Q4: Compare the magnitude of the acceleration of block A to block B: aA = aB
Q5: Explain. In acceleration both blocks act as one system

Q6: Compare the magnitude of $T_{\text{on A by 1}}$ to $T_{\text{on 1 by A}}$. T(on A by 1) = T(on 1 by A)
Q7: Explain. 3rd Law Force Pair

Q8: Compare the magnitude of $T_{\text{on A by 2}}$ to $T_{\text{on B by 2}}$. T(on A by 2) = T(on B by 2)
Q9: Explain. 3rd Law Force Pair

Q10: Compare the magnitude of $T_{\text{on A by 1}}$ to $T_{\text{on B by 2}}$. T(on A by 1) > T(on B by 2)
Q11: Explain. F = ma a is constant F of A is really A+B which is greater than B

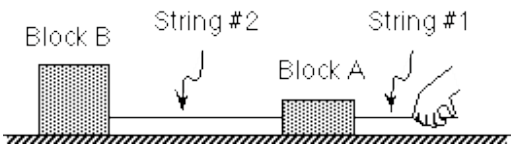
Consider the same situation as above. (Recall that there is no friction between the table and blocks.)

Q12. Determine the tension in string 2 if the hand exerts a force of 12 N, the mass of block A is 2 kg, and the mass of block B is 4 kg. (Only include the value in your answer; do not include units in your answer.) 8

Q13. Explain. 12N = (2kg + 4kg)a a = 2m/ss a * B == 8N

Student#: **NAME**

Two blocks of unequal mass ($m_A < m_B$) are connected by a string (string 2). The blocks are placed on a frictionless table and pulled by another string (string 1) that is attached to block A such that both blocks move together faster and faster. Assume both strings are inextensible and massless.



Q4: Compare the magnitude of the acceleration of block A to block B: aA = aB

Q5: Explain. If the strings don't stretch then the blocks have to accelerate at the same rate.

Q6: Compare the magnitude of $T_{\text{on A by 1}}$ to $T_{\text{on 1 by A}}$. T(on A by 1) = T(on 1 by A)

Q7: Explain. its a action reaction pair

Q8: Compare the magnitude of $T_{\text{on A by 2}}$ to $T_{\text{on B by 2}}$. T(on A by 2) = T(on B by 2)

Q9: Explain. action reaction pair

Q10: Compare the magnitude of $T_{\text{on A by 1}}$ to $T_{\text{on B by 2}}$. T(on A by 1) < T(on B by 2)

Q11: Explain. because the mass of A is less than the mass of B and acceleration is the same, the force will be less on A

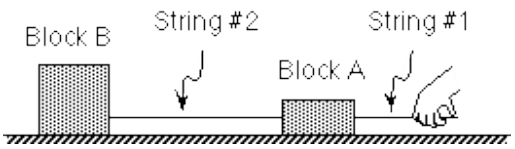
Consider the same situation as above. (Recall that there is no friction between the table and blocks.)

Q12. Determine the tension in string 2 if the hand exerts a force of 12 N, the mass of block A is 2 kg, and the mass of block B is 4 kg. (Only include the value in your answer; do not include units in your answer.) 24

Q13. Explain. twice the mass, twice the force

Student#: **NAME**

Two blocks of unequal mass ($m_A < m_B$) are connected by a string (string 2). The blocks are placed on a frictionless table and pulled by another string (string 1) that is attached to block A such that both blocks move together faster and faster. Assume both strings are inextensible and massless.



Q4: Compare the magnitude of the acceleration of block A to block B: aA = aB
Q5: Explain. Because they are moving together.

Q6: Compare the magnitude of $T_{\text{on A by 1}}$ to $T_{\text{on 1 by A}}$. T(on A by 1) = T(on 1 by A)
Q7: Explain. They are Force pairs.

Q8: Compare the magnitude of $T_{\text{on A by 2}}$ to $T_{\text{on B by 2}}$. T(on A by 2) = T(on B by 2)
Q9: Explain. Because they are attached to the same rope.

Q10: Compare the magnitude of $T_{\text{on A by 1}}$ to $T_{\text{on B by 2}}$. T(on A by 1) > T(on B by 2)
Q11: Explain. Because the sum of the two block's mass is bigger than that of block B.

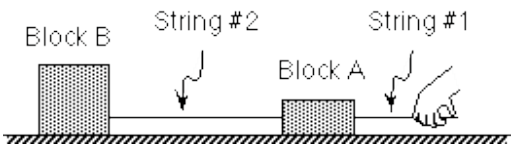
Consider the same situation as above. (Recall that there is no friction between the table and blocks.)

Q12. Determine the tension in string 2 if the hand exerts a force of 12 N, the mass of block A is 2 kg, and the mass of block B is 4 kg. (Only include the value in your answer; do not include units in your answer.) 8

Q13. Explain. accerleration = 12/(2+4) = 2 m/s^2Therefore the tension is equal to 4 * 2 = 8 N

Student#: **NAME**

Two blocks of unequal mass ($m_A < m_B$) are connected by a string (string 2). The blocks are placed on a frictionless table and pulled by another string (string 1) that is attached to block A such that both blocks move together faster and faster. Assume both strings are inextensible and massless.



Q4: Compare the magnitude of the acceleration of block A to block B: aA = aB
Q5: Explain. linked systems

Q6: Compare the magnitude of $T_{\text{on A by 1}}$ to $T_{\text{on 1 by A}}$. T(on A by 1) = T(on 1 by A)
Q7: Explain. 3rd law pair

Q8: Compare the magnitude of $T_{\text{on A by 2}}$ to $T_{\text{on B by 2}}$. T(on A by 2) = T(on B by 2)
Q9: Explain.

Q10: Compare the magnitude of $T_{\text{on A by 1}}$ to $T_{\text{on B by 2}}$. T(on A by 1) > T(on B by 2)
Q11: Explain. t1 accelerates the whole system, while t2 accelerates only block B

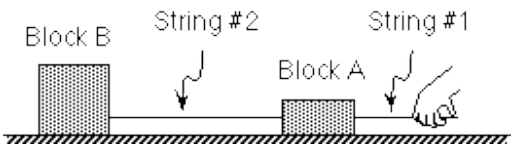
Consider the same situation as above. (Recall that there is no friction between the table and blocks.)

Q12. Determine the tension in string 2 if the hand exerts a force of 12 N, the mass of block A is 2 kg, and the mass of block B is 4 kg. (Only include the value in your answer; do not include units in your answer.) 8

Q13. Explain. Asystem * Mass system = tension string 1Asystem * mass block B = tension string 2

Student#: **NAME**

Two blocks of unequal mass ($m_A < m_B$) are connected by a string (string 2). The blocks are placed on a frictionless table and pulled by another string (string 1) that is attached to block A such that both blocks move together faster and faster. Assume both strings are inextensible and massless.



Q4: Compare the magnitude of the acceleration of block A to block B: aA > aB
Q5: Explain. Because the blocks are connected so they move at the same speed

Q6: Compare the magnitude of $T_{\text{on A by 1}}$ to $T_{\text{on 1 by A}}$. T(on A by 1) = T(on 1 by A)
Q7: Explain. the force on A and 1 are third law pairs

Q8: Compare the magnitude of $T_{\text{on A by 2}}$ to $T_{\text{on B by 2}}$. T(on A by 2) = T(on B by 2)
Q9: Explain. the force on A and 2 are third law pairs

Q10: Compare the magnitude of $T_{\text{on A by 1}}$ to $T_{\text{on B by 2}}$. T(on A by 1) < T(on B by 2)
Q11: Explain. the weight of 2 is more than 1 and therefore A and 1 is less than A and 2

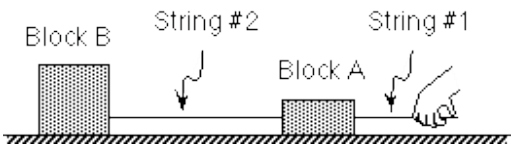
Consider the same situation as above. (Recall that there is no friction between the table and blocks.)

Q12. Determine the tension in string 2 if the hand exerts a force of 12 N, the mass of block A is 2 kg, and the mass of block B is 4 kg. (Only include the value in your answer; do not include units in your answer.) 18

Q13. Explain. you add all the forces together

Student#: **NAME**

Two blocks of unequal mass ($m_A < m_B$) are connected by a string (string 2). The blocks are placed on a frictionless table and pulled by another string (string 1) that is attached to block A such that both blocks move together faster and faster. Assume both strings are inextensible and massless.



Q4: Compare the magnitude of the acceleration of block A to block B: aA = aB
Q5: Explain. they'll have to be movig at the same velocity and therefore the same accel. b/c of the strings

Q6: Compare the magnitude of $T_{\text{on A by 1}}$ to $T_{\text{on 1 by A}}$. T(on A by 1) = T(on 1 by A)
Q7: Explain. newton's 3rd law

Q8: Compare the magnitude of $T_{\text{on A by 2}}$ to $T_{\text{on B by 2}}$. T(on A by 2) = T(on B by 2)
Q9: Explain. 3rd law pair

Q10: Compare the magnitude of $T_{\text{on A by 1}}$ to $T_{\text{on B by 2}}$. T(on A by 1) > T(on B by 2)
Q11: Explain. some of the force will be used up in moving block 1

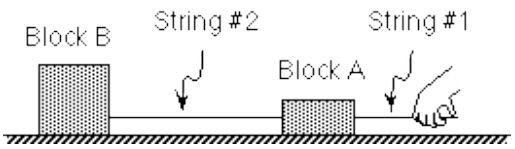
Consider the same situation as above. (Recall that there is no friction between the table and blocks.)

Q12. Determine the tension in string 2 if the hand exerts a force of 12 N, the mass of block A is 2 kg, and the mass of block B is 4 kg. (Only include the value in your answer; do not include units in your answer.) 8

Q13. Explain. they'll have to be proportional

Student#: **NAME**

Two blocks of unequal mass ($m_A < m_B$) are connected by a string (string 2). The blocks are placed on a frictionless table and pulled by another string (string 1) that is attached to block A such that both blocks move together faster and faster. Assume both strings are inextensible and massless.



Q4: Compare the magnitude of the acceleration of block A to block B: aA = aB

Q5: Explain. since it's on a frictionless surface, the forces throughout the entire system should be equal

Q6: Compare the magnitude of $T_{\text{on A by 1}}$ to $T_{\text{on 1 by A}}$. T(on A by 1) = T(on 1 by A)

Q7: Explain. they are both an action reaction, so fallowing Newton's third law of motion, they are both equal

Q8: Compare the magnitude of $T_{\text{on A by 2}}$ to $T_{\text{on B by 2}}$. T(on A by 2) = T(on B by 2)

Q9: Explain. they are not an action reaction pair, but since they both have the same force on them, i think that they should be equal

Q10: Compare the magnitude of $T_{\text{on A by 1}}$ to $T_{\text{on B by 2}}$. T(on A by 1) = T(on B by 2)

Q11: Explain. since it's frictionless, i think that they should be equal

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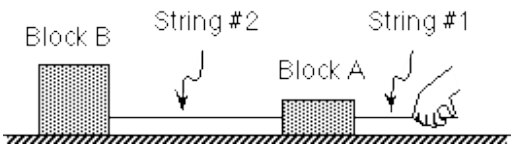
Consider the same situation as above. (Recall that there is no friction between the table and blocks.)

Q12. Determine the tension in string 2 if the hand exerts a force of 12 N, the mass of block A is 2 kg, and the mass of block B is 4 kg. (Only include the value in your answer; do not include units in your answer.) 12

Q13. Explain. it should be the same tension

Student#: **NAME**

Two blocks of unequal mass ($m_A < m_B$) are connected by a string (string 2). The blocks are placed on a frictionless table and pulled by another string (string 1) that is attached to block A such that both blocks move together faster and faster. Assume both strings are inextensible and massless.



Q4: Compare the magnitude of the acceleration of block A to block B: aA = aB

Q5: Explain. because they are moving at the same speed because of the common force pulling the both of them.

Q6: Compare the magnitude of $T_{\text{on A by 1}}$ to $T_{\text{on 1 by A}}$. T(on A by 1) = T(on 1 by A)

Q7: Explain. Newton's third law: each force has an equal but opposite directed force on each other.

Q8: Compare the magnitude of $T_{\text{on A by 2}}$ to $T_{\text{on B by 2}}$. T(on A by 2) = T(on B by 2)

Q9: Explain. It is a common tension force that connects the two blocks so that they may be considered as one full system that is why the tension is the same between the two.

Q10: Compare the magnitude of $T_{\text{on A by 1}}$ to $T_{\text{on B by 2}}$. T(on A by 1) > T(on B by 2)

Q11: Explain. because string 1 on block a has to pull block a and the mass of block b.

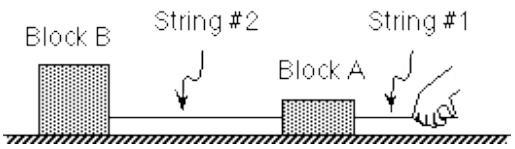
Consider the same situation as above. (Recall that there is no friction between the table and blocks.)

Q12. Determine the tension in string 2 if the hand exerts a force of 12 N, the mass of block A is 2 kg, and the mass of block B is 4 kg. (Only include the value in your answer; do not include units in your answer.) 4

Q13. Explain. because it had to pull the mass of block b

Student#: **NAME**

Two blocks of unequal mass ($m_A < m_B$) are connected by a string (string 2). The blocks are placed on a frictionless table and pulled by another string (string 1) that is attached to block A such that both blocks move together faster and faster. Assume both strings are inextensible and massless.



Q4: Compare the magnitude of the acceleration of block A to block B: aA = aB
Q5: Explain. because they are moving together

Q6: Compare the magnitude of $T_{\text{on A by 1}}$ to $T_{\text{on 1 by A}}$. T(on A by 1) = T(on 1 by A)
Q7: Explain. equal third law pairs

Q8: Compare the magnitude of $T_{\text{on A by 2}}$ to $T_{\text{on B by 2}}$. T(on A by 2) < T(on B by 2)
Q9: Explain. because block B has a greater mass but same acceleration as block A

Q10: Compare the magnitude of $T_{\text{on A by 1}}$ to $T_{\text{on B by 2}}$. T(on A by 1) < T(on B by 2)
Q11: Explain. because block B has a greater mass but same acceleration as block A

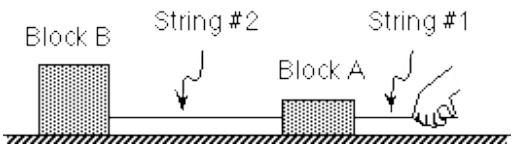
Consider the same situation as above. (Recall that there is no friction between the table and blocks.)

Q12. Determine the tension in string 2 if the hand exerts a force of 12 N, the mass of block A is 2 kg, and the mass of block B is 4 kg. (Only include the value in your answer; do not include units in your answer.) 24

Q13. Explain. acceleration is the same for both of them so I solved for the acceleration then for the force on block B

Student#: **NAME**

Two blocks of unequal mass ($m_A < m_B$) are connected by a string (string 2). The blocks are placed on a frictionless table and pulled by another string (string 1) that is attached to block A such that both blocks move together faster and faster. Assume both strings are inextensible and massless.



Q4: Compare the magnitude of the acceleration of block A to block B: aA = aB
Q5: Explain. They are both equal because they are accelerating at the same rate

Q6: Compare the magnitude of $T_{\text{on A by 1}}$ to $T_{\text{on 1 by A}}$. T(on A by 1) = T(on 1 by A)
Q7: Explain. They are both the same forces

Q8: Compare the magnitude of $T_{\text{on A by 2}}$ to $T_{\text{on B by 2}}$. T(on A by 2) = T(on B by 2)
Q9: Explain. They are both the same forces

Q10: Compare the magnitude of $T_{\text{on A by 1}}$ to $T_{\text{on B by 2}}$. T(on A by 1) = T(on B by 2)
Q11: Explain. They are the same forces

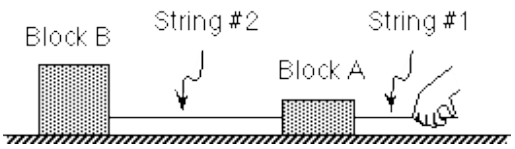
Consider the same situation as above. (Recall that there is no friction between the table and blocks.)

Q12. Determine the tension in string 2 if the hand exerts a force of 12 N, the mass of block A is 2 kg, and the mass of block B is 4 kg. (Only include the value in your answer; do not include units in your answer.) 7.6

Q13. Explain. THe tension in string 2 will be the tension of block 2 minus the tension caused by the block A and the hand

Student#: **NAME**

Two blocks of unequal mass ($m_A < m_B$) are connected by a string (string 2). The blocks are placed on a frictionless table and pulled by another string (string 1) that is attached to block A such that both blocks move together faster and faster. Assume both strings are inextensible and massless.



Q4: Compare the magnitude of the acceleration of block A to block B: aA = aB
Q5: Explain. They are attached by a string so they must accelerate together.

Q6: Compare the magnitude of $T_{\text{on A by 1}}$ to $T_{\text{on 1 by A}}$. T(on A by 1) = T(on 1 by A)
Q7: Explain. The tension must be the same or the rope would be slack

Q8: Compare the magnitude of $T_{\text{on A by 2}}$ to $T_{\text{on B by 2}}$. T(on A by 2) > T(on B by 2)
Q9: Explain. A has more mass

Q10: Compare the magnitude of $T_{\text{on A by 1}}$ to $T_{\text{on B by 2}}$. T(on A by 1) > T(on B by 2)
Q11: Explain. More mass

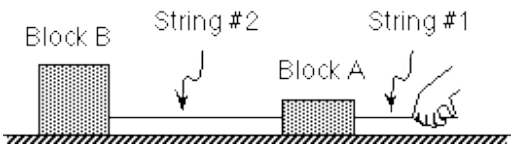
Consider the same situation as above. (Recall that there is no friction between the table and blocks.)

Q12. Determine the tension in string 2 if the hand exerts a force of 12 N, the mass of block A is 2 kg, and the mass of block B is 4 kg. (Only include the value in your answer; do not include units in your answer.) 8

Q13. Explain. string 2 is only pulling block b

Student#: **NAME**

Two blocks of unequal mass ($m_A < m_B$) are connected by a string (string 2). The blocks are placed on a frictionless table and pulled by another string (string 1) that is attached to block A such that both blocks move together faster and faster. Assume both strings are inextensible and massless.



Q4: Compare the magnitude of the acceleration of block A to block B: aA = aB
Q5: Explain. they are connected by the string and the string cant stretch

Q6: Compare the magnitude of $T_{\text{on A by 1}}$ to $T_{\text{on 1 by A}}$. T(on A by 1) = T(on 1 by A)
Q7: Explain. 3rd law pair

Q8: Compare the magnitude of $T_{\text{on A by 2}}$ to $T_{\text{on B by 2}}$. T(on A by 2) > T(on B by 2)
Q9: Explain. the motin of the block makes it greater than

Q10: Compare the magnitude of $T_{\text{on A by 1}}$ to $T_{\text{on B by 2}}$. T(on A by 1) > T(on B by 2)
Q11: Explain. string 1 has to move both masses while string 2 just has to move b making it less of a force

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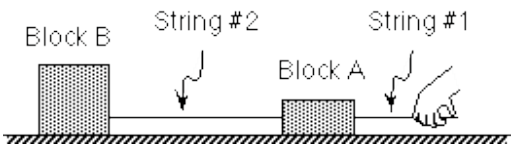
Consider the same situation as above. (Recall that there is no friction between the table and blocks.)

Q12. Determine the tension in string 2 if the hand exerts a force of 12 N, the mass of block A is 2 kg, and the mass of block B is 4 kg. (Only include the value in your answer; do not include units in your answer.) 8

Q13. Explain. the accel of the system is 2 multiplied by 4 making 8

Student#: **NAME**

Two blocks of unequal mass ($m_A < m_B$) are connected by a string (string 2). The blocks are placed on a frictionless table and pulled by another string (string 1) that is attached to block A such that both blocks move together faster and faster. Assume both strings are inextensible and massless.



Q4: Compare the magnitude of the acceleration of block A to block B: aA = aB
Q5: Explain. They are being pulled together and therefore have the same acceleration

Q6: Compare the magnitude of $T_{\text{on A by 1}}$ to $T_{\text{on 1 by A}}$. T(on A by 1) < T(on 1 by A)
Q7: Explain. This is because of the differences in the masses

Q8: Compare the magnitude of $T_{\text{on A by 2}}$ to $T_{\text{on B by 2}}$. T(on A by 2) = T(on B by 2)
Q9: Explain. The string has the same tension regardless of how you label it

Q10: Compare the magnitude of $T_{\text{on A by 1}}$ to $T_{\text{on B by 2}}$. T(on A by 1) < T(on B by 2)
Q11: Explain. This again has to do with the differences in the masses

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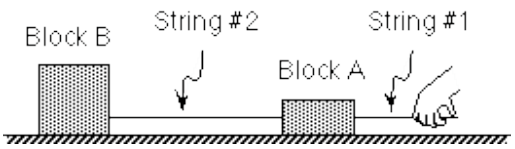
Consider the same situation as above. (Recall that there is no friction between the table and blocks.)

Q12. Determine the tension in string 2 if the hand exerts a force of 12 N, the mass of block A is 2 kg, and the mass of block B is 4 kg. (Only include the value in your answer; do not include units in your answer.) 12

Q13. Explain. Since there is no friction, the blocks should have the same tension between them on the rope.

Student#: **NAME**

Two blocks of unequal mass ($m_A < m_B$) are connected by a string (string 2). The blocks are placed on a frictionless table and pulled by another string (string 1) that is attached to block A such that both blocks move together faster and faster. Assume both strings are inextensible and massless.



Q4: Compare the magnitude of the acceleration of block A to block B: aA = aB

Q5: Explain. The acceleration is equal due to the fact that the objects are moving together as a system.

Q6: Compare the magnitude of $T_{\text{on A by 1}}$ to $T_{\text{on 1 by A}}$. T(on A by 1) > T(on 1 by A)

Q7: Explain. It is pulling a greater mass compared to the other object.

Q8: Compare the magnitude of $T_{\text{on A by 2}}$ to $T_{\text{on B by 2}}$. T(on A by 2) < T(on B by 2)

Q9: Explain. The force is going the in opppostie direction as A.

Q10: Compare the magnitude of $T_{\text{on A by 1}}$ to $T_{\text{on B by 2}}$. T(on A by 1) > T(on B by 2)

Q11: Explain. There is a larger mass being pulled.

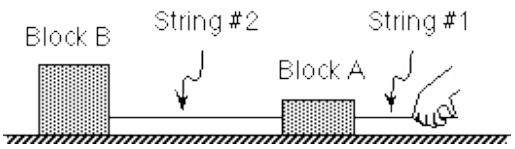
Consider the same situation as above. (Recall that there is no friction between the table and blocks.)

Q12. Determine the tension in string 2 if the hand exerts a force of 12 N, the mass of block A is 2 kg, and the mass of block B is 4 kg. (Only include the value in your answer; do not include units in your answer.) 2-Mar

Q13. Explain. The force has to equal the two masses multiplied and divided by the force given.

Student#: **NAME**

Two blocks of unequal mass ($m_A < m_B$) are connected by a string (string 2). The blocks are placed on a frictionless table and pulled by another string (string 1) that is attached to block A such that both blocks move together faster and faster. Assume both strings are inextensible and massless.



Q4: Compare the magnitude of the acceleration of block A to block B: aA = aB
Q5: Explain. The two blocks can be seen as one system

Q6: Compare the magnitude of $T_{\text{on A by 1}}$ to $T_{\text{on 1 by A}}$. T(on A by 1) = T(on 1 by A)
Q7: Explain. To every action there is an equal and opposite reaction.

Q8: Compare the magnitude of $T_{\text{on A by 2}}$ to $T_{\text{on B by 2}}$. T(on A by 2) = T(on B by 2)
Q9: Explain. To every action there is an equal and opposite reaction.

Q10: Compare the magnitude of $T_{\text{on A by 1}}$ to $T_{\text{on B by 2}}$. T(on A by 1) > T(on B by 2)
Q11: Explain. Because string one has to pull blocks 1 & 2, where as string 2 only has to pull the mass of block two.

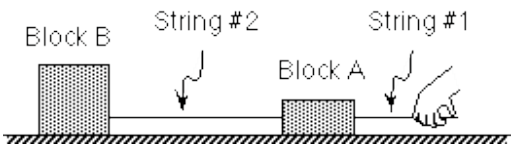
Consider the same situation as above. (Recall that there is no friction between the table and blocks.)

Q12. Determine the tension in string 2 if the hand exerts a force of 12 N, the mass of block A is 2 kg, and the mass of block B is 4 kg. (Only include the value in your answer; do not include units in your answer.) 12

Q13. Explain. Because that's the force used by the hand to pull both the blocks.

Student#: **NAME**

Two blocks of unequal mass ($m_A < m_B$) are connected by a string (string 2). The blocks are placed on a frictionless table and pulled by another string (string 1) that is attached to block A such that both blocks move together faster and faster. Assume both strings are inextensible and massless.



Q4: Compare the magnitude of the acceleration of block A to block B: aA = aB
Q5: Explain. same direction and both are increasing speed

Q6: Compare the magnitude of $T_{\text{on A by 1}}$ to $T_{\text{on 1 by A}}$. T(on A by 1) > T(on 1 by A)
Q7: Explain. the direction of the force on 1 by A doesn't have the hand included

Q8: Compare the magnitude of $T_{\text{on A by 2}}$ to $T_{\text{on B by 2}}$. T(on A by 2) < T(on B by 2)
Q9: Explain. mb>ma

Q10: Compare the magnitude of $T_{\text{on A by 1}}$ to $T_{\text{on B by 2}}$. T(on A by 1) < T(on B by 2)
Q11: Explain. more mass on B

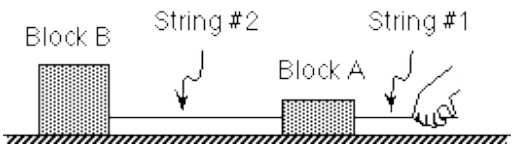
Consider the same situation as above. (Recall that there is no friction between the table and blocks.)

Q12. Determine the tension in string 2 if the hand exerts a force of 12 N, the mass of block A is 2 kg, and the mass of block B is 4 kg. (Only include the value in your answer; do not include units in your answer.) 20

Q13. Explain. F(hand)+ M(a)- M(b)

Student#: **NAME**

Two blocks of unequal mass ($m_A < m_B$) are connected by a string (string 2). The blocks are placed on a frictionless table and pulled by another string (string 1) that is attached to block A such that both blocks move together faster and faster. Assume both strings are inextensible and massless.



Q4: Compare the magnitude of the acceleration of block A to block B: aA = aB

Q5: Explain. The blocks and the strings accelerate together as a system, meaning they all have the same acceleration.

Q6: Compare the magnitude of $T_{\text{on A by 1}}$ to $T_{\text{on 1 by A}}$. T(on A by 1) = T(on 1 by A)

Q7: Explain. These forces are a Newton's third law action reaction pair and are by definition equal in magnititude.

Q8: Compare the magnitude of $T_{\text{on A by 2}}$ to $T_{\text{on B by 2}}$. T(on A by 2) = T(on B by 2)

Q9: Explain. In an inextensible, massless string, the tensions on the objects at either end are the same.

Q10: Compare the magnitude of $T_{\text{on A by 1}}$ to $T_{\text{on B by 2}}$. T(on A by 1) > T(on B by 2)

Q11: Explain. The T on A by 1 is greater because it encompasses the mass of the entire system, while T on B by 2 is affected only by the mass of block B.

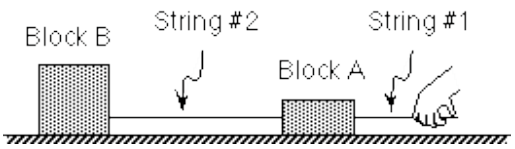
Consider the same situation as above. (Recall that there is no friction between the table and blocks.)

Q12. Determine the tension in string 2 if the hand exerts a force of 12 N, the mass of block A is 2 kg, and the mass of block B is 4 kg. (Only include the value in your answer; do not include units in your answer.) 8

Q13. Explain. After drawing two FBD's, one for each block, and assuming that since the blocks accelerate at the same rate, we have two simultaneous equations with two unknowns, Tension in 2 and the acceleration. We can solve for these easily.

Student#: **NAME**

Two blocks of unequal mass ($m_A < m_B$) are connected by a string (string 2). The blocks are placed on a frictionless table and pulled by another string (string 1) that is attached to block A such that both blocks move together faster and faster. Assume both strings are inextensible and massless.



Q4: Compare the magnitude of the acceleration of block A to block B: aA = aB

Q5: Explain. they are connected, if one accelerated faster than the other, they would get closer or farther apart

Q6: Compare the magnitude of $T_{\text{on A by 1}}$ to $T_{\text{on 1 by A}}$. T(on A by 1) > T(on 1 by A)

Q7: Explain. the hand has to pull with enough force to pull both blocks,

Q8: Compare the magnitude of $T_{\text{on A by 2}}$ to $T_{\text{on B by 2}}$. T(on A by 2) = T(on B by 2)

Q9: Explain. the tension is equal throught the string

Q10: Compare the magnitude of $T_{\text{on A by 1}}$ to $T_{\text{on B by 2}}$. T(on A by 1) > T(on B by 2)

Q11: Explain. the strin is overcoming both forces to pull both blocks

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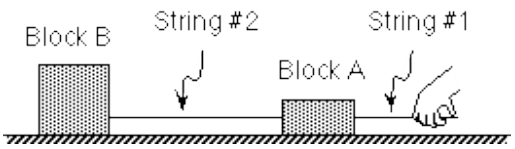
Consider the same situation as above. (Recall that there is no friction between the table and blocks.)

Q12. Determine the tension in string 2 if the hand exerts a force of 12 N, the mass of block A is 2 kg, and the mass of block B is 4 kg. (Only include the value in your answer; do not include units in your answer.) 12N

Q13. Explain. f=ma total mass is 6 force is 12 acceleration is 2 f=ma

Student#: **NAME**

Two blocks of unequal mass ($m_A < m_B$) are connected by a string (string 2). The blocks are placed on a frictionless table and pulled by another string (string 1) that is attached to block A such that both blocks move together faster and faster. Assume both strings are inextensible and massless.



Q4: Compare the magnitude of the acceleration of block A to block B: aA = aB

Q5: Explain. because both blocks move at the same rate.

Q6: Compare the magnitude of $T_{\text{on A by 1}}$ to $T_{\text{on 1 by A}}$. T(on A by 1) > T(on 1 by A)

Q7: Explain. T on A by 1 is greater because the block moves

Q8: Compare the magnitude of $T_{\text{on A by 2}}$ to $T_{\text{on B by 2}}$. T(on A by 2) < T(on B by 2)

Q9: Explain. Block A is exerting the force on string 2

Q10: Compare the magnitude of $T_{\text{on A by 1}}$ to $T_{\text{on B by 2}}$. T(on A by 1) < T(on B by 2)

Q11: Explain. because block B weighs more than block A

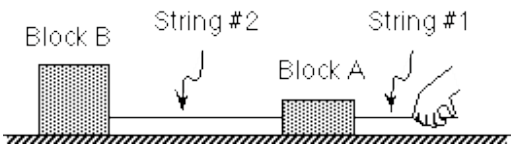
Consider the same situation as above. (Recall that there is no friction between the table and blocks.)

Q12. Determine the tension in string 2 if the hand exerts a force of 12 N, the mass of block A is 2 kg, and the mass of block B is 4 kg. (Only include the value in your answer; do not include units in your answer.) 24

Q13. Explain. I guessed

Student#: **NAME**

Two blocks of unequal mass ($m_A < m_B$) are connected by a string (string 2). The blocks are placed on a frictionless table and pulled by another string (string 1) that is attached to block A such that both blocks move together faster and faster. Assume both strings are inextensible and massless.



Q4: Compare the magnitude of the acceleration of block A to block B: aA > aB

Q5: Explain. block a is helping pull block be also therefore will need higher acceleration

Q6: Compare the magnitude of $T_{\text{on A by 1}}$ to $T_{\text{on 1 by A}}$. T(on A by 1) = T(on 1 by A)

Q7: Explain. the force pairs have to cancle out there can't be newtons 3rd law

Q8: Compare the magnitude of $T_{\text{on A by 2}}$ to $T_{\text{on B by 2}}$. T(on A by 2) = T(on B by 2)

Q9: Explain.

Q10: Compare the magnitude of $T_{\text{on A by 1}}$ to $T_{\text{on B by 2}}$. T(on A by 1) < T(on B by 2)

Q11: Explain.

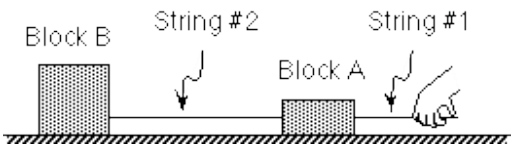
Consider the same situation as above. (Recall that there is no friction between the table and blocks.)

Q12. Determine the tension in string 2 if the hand exerts a force of 12 N, the mass of block A is 2 kg, and the mass of block B is 4 kg. (Only include the value in your answer; do not include units in your answer.) 6

Q13. Explain.

Student#: **NAME**

Two blocks of unequal mass ($m_A < m_B$) are connected by a string (string 2). The blocks are placed on a frictionless table and pulled by another string (string 1) that is attached to block A such that both blocks move together faster and faster. Assume both strings are inextensible and massless.



Q4: Compare the magnitude of the acceleration of block A to block B: aA = aB
Q5: Explain. It is equal because they move together.

Q6: Compare the magnitude of $T_{\text{on A by 1}}$ to $T_{\text{on 1 by A}}$. T(on A by 1) > T(on 1 by A)
Q7: Explain. Because the block is moving so the force must be greater.

Q8: Compare the magnitude of $T_{\text{on A by 2}}$ to $T_{\text{on B by 2}}$. T(on A by 2) < T(on B by 2)
Q9: Explain. Because B has a greater mass so it takes more force to pull it with the same acceleration as A.

Q10: Compare the magnitude of $T_{\text{on A by 1}}$ to $T_{\text{on B by 2}}$. T(on A by 1) < T(on B by 2)
Q11: Explain. B has a greater mass.

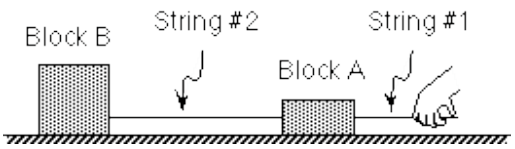
Consider the same situation as above. (Recall that there is no friction between the table and blocks.)

Q12. Determine the tension in string 2 if the hand exerts a force of 12 N, the mass of block A is 2 kg, and the mass of block B is 4 kg. (Only include the value in your answer; do not include units in your answer.) 12

Q13. Explain. I don't know.

Student#: **NAME**

Two blocks of unequal mass ($m_A < m_B$) are connected by a string (string 2). The blocks are placed on a frictionless table and pulled by another string (string 1) that is attached to block A such that both blocks move together faster and faster. Assume both strings are inextensible and massless.



Q4: Compare the magnitude of the acceleration of block A to block B: aA < aB

Q5: Explain. Because block B has a greater force pulling on it, the hand and block A, and its mass is less, therefore it's acceleration needs to be bigger to suppliment this.

Q6: Compare the magnitude of $T_{\text{on A by 1}}$ to $T_{\text{on 1 by A}}$. T(on A by 1) = T(on 1 by A)

Q7: Explain. Newton's third Law.

Q8: Compare the magnitude of $T_{\text{on A by 2}}$ to $T_{\text{on B by 2}}$. T(on A by 2) = T(on B by 2)

Q9: Explain. Newton's Third Law.

Q10: Compare the magnitude of $T_{\text{on A by 1}}$ to $T_{\text{on B by 2}}$. T(on A by 1) < T(on B by 2)

Q11: Explain. Because the force on block B is greater than block A.

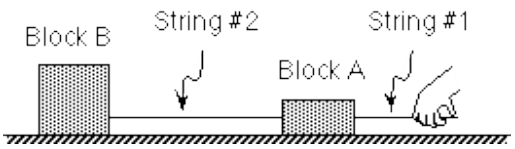
Consider the same situation as above. (Recall that there is no friction between the table and blocks.)

Q12. Determine the tension in string 2 if the hand exerts a force of 12 N, the mass of block A is 2 kg, and the mass of block B is 4 kg. (Only include the value in your answer; do not include units in your answer.) 24

Q13. Explain. Because if the Force on block A is 12, and the mass is 2, the acceleration is 6, and the acceleration of the entire system is constant throughout, therefore if the acceleration on block B is 6 and its mass 4, using newtons second law, F=MA, the force is 24.

Student#: **NAME**

Two blocks of unequal mass ($m_A < m_B$) are connected by a string (string 2). The blocks are placed on a frictionless table and pulled by another string (string 1) that is attached to block A such that both blocks move together faster and faster. Assume both strings are inextensible and massless.



Q4: Compare the magnitude of the acceleration of block A to block B: aA = aB
Q5: Explain. Because block A and B move as a system with equal acceleration.

Q6: Compare the magnitude of $T_{\text{on A by 1}}$ to $T_{\text{on 1 by A}}$. T(on A by 1) = T(on 1 by A)
Q7: Explain. Newton's 3rd law.Action/reaction pair.

Q8: Compare the magnitude of $T_{\text{on A by 2}}$ to $T_{\text{on B by 2}}$. T(on A by 2) > T(on B by 2)
Q9: Explain. Block B has a greater mass so in order to obtain the same acceleration the force to move it must be larger.

Q10: Compare the magnitude of $T_{\text{on A by 1}}$ to $T_{\text{on B by 2}}$. T(on A by 1) > T(on B by 2)
Q11: Explain. The force on A by 1 is greater because it must be great enough to move both blocks whereas the force on B by 2 must only be great enough to move block B.

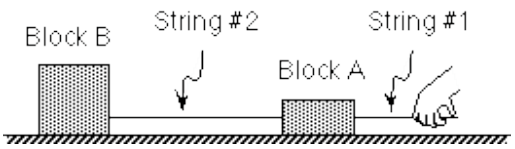
Consider the same situation as above. (Recall that there is no friction between the table and blocks.)

Q12. Determine the tension in string 2 if the hand exerts a force of 12 N, the mass of block A is 2 kg, and the mass of block B is 4 kg. (Only include the value in your answer; do not include units in your answer.) 4

Q13. Explain. It is 4 because only block B is creating the tension and thus the force must be equal to the mass.

Student#: **NAME**

Two blocks of unequal mass ($m_A < m_B$) are connected by a string (string 2). The blocks are placed on a frictionless table and pulled by another string (string 1) that is attached to block A such that both blocks move together faster and faster. Assume both strings are inextensible and massless.



Q4: Compare the magnitude of the acceleration of block A to block B: aA = aB
Q5: Explain. because they move at the same rates,

Q6: Compare the magnitude of $T_{\text{on A by 1}}$ to $T_{\text{on 1 by A}}$. T(on A by 1) > T(on 1 by A)
Q7: Explain. String one has the opposing forces from A and B while 2 only has B

Q8: Compare the magnitude of $T_{\text{on A by 2}}$ to $T_{\text{on B by 2}}$. T(on A by 2) = T(on B by 2)
Q9: Explain. Newton's second law

Q10: Compare the magnitude of $T_{\text{on A by 1}}$ to $T_{\text{on B by 2}}$. T(on A by 1) > T(on B by 2)
Q11: Explain. String 1 pulls both blocks, while string 2 only pulls block B

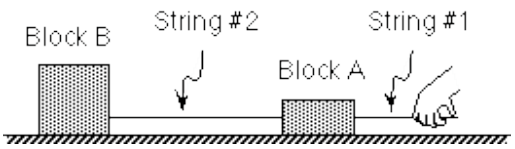
Consider the same situation as above. (Recall that there is no friction between the table and blocks.)

Q12. Determine the tension in string 2 if the hand exerts a force of 12 N, the mass of block A is 2 kg, and the mass of block B is 4 kg. (Only include the value in your answer; do not include units in your answer.) 8

Q13. Explain. the acceleration is the force divided by both masses together, and the force on string 2 is that acceleration times the mass of block B

Student#: **NAME**

Two blocks of unequal mass ($m_A < m_B$) are connected by a string (string 2). The blocks are placed on a frictionless table and pulled by another string (string 1) that is attached to block A such that both blocks move together faster and faster. Assume both strings are inextensible and massless.



Q4: Compare the magnitude of the acceleration of block A to block B: aA = aB
Q5: Explain. Block A is moving the same speed as block B, they are connected by a string

Q6: Compare the magnitude of $T_{\text{on A by 1}}$ to $T_{\text{on 1 by A}}$. T(on A by 1) = T(on 1 by A)
Q7: Explain. Newton's 3rd law, action-reaction force

Q8: Compare the magnitude of $T_{\text{on A by 2}}$ to $T_{\text{on B by 2}}$. T(on A by 2) = T(on B by 2)
Q9: Explain. because the two forces are action-reaction pair, normal forces.

Q10: Compare the magnitude of $T_{\text{on A by 1}}$ to $T_{\text{on B by 2}}$. T(on A by 1) > T(on B by 2)
Q11: Explain. because the force on A is pulling the entire system (A&B).

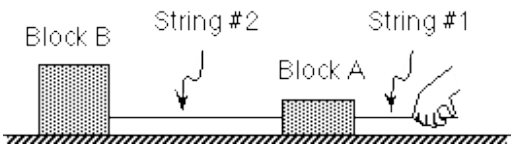
Consider the same situation as above. (Recall that there is no friction between the table and blocks.)

Q12. Determine the tension in string 2 if the hand exerts a force of 12 N, the mass of block A is 2 kg, and the mass of block B is 4 kg. (Only include the value in your answer; do not include units in your answer.) 8

Q13. Explain. the acceleration of the entire system is 12/(2+4) = 2. thus, the tention on string 2 is 4 * 2 = 8.

Student#: **NAME**

Two blocks of unequal mass ($m_A < m_B$) are connected by a string (string 2). The blocks are placed on a frictionless table and pulled by another string (string 1) that is attached to block A such that both blocks move together faster and faster. Assume both strings are inextensible and massless.



Q4: Compare the magnitude of the acceleration of block A to block B: aA = aB

Q5: Explain. They both move at the same instantaneous speeds so they both change velocity at the same amounts.

Q6: Compare the magnitude of $T_{\text{on A by 1}}$ to $T_{\text{on 1 by A}}$. T(on A by 1) = T(on 1 by A)

Q7: Explain. They are a reaction pair.

Q8: Compare the magnitude of $T_{\text{on A by 2}}$ to $T_{\text{on B by 2}}$. T(on A by 2) = T(on B by 2)

Q9: Explain. The tension is always equal at both ends.

Q10: Compare the magnitude of $T_{\text{on A by 1}}$ to $T_{\text{on B by 2}}$. T(on A by 1) > T(on B by 2)

Q11: Explain. The tension induced by the hand is enough to pull the entire system. But the tension in string 2 is only enough to pull block B.

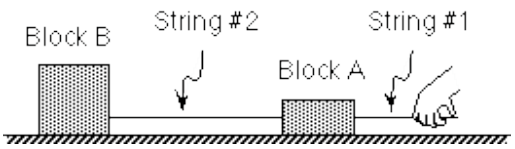
Consider the same situation as above. (Recall that there is no friction between the table and blocks.)

Q12. Determine the tension in string 2 if the hand exerts a force of 12 N, the mass of block A is 2 kg, and the mass of block B is 4 kg. (Only include the value in your answer; do not include units in your answer.) 8

Q13. Explain. The acceleration of the system is 12N/(4 + 2)kg = 2 m/s2. Then, F=MA so F=4kg * 2 m/s2 = 8 N

Student#: **NAME**

Two blocks of unequal mass ($m_A < m_B$) are connected by a string (string 2). The blocks are placed on a frictionless table and pulled by another string (string 1) that is attached to block A such that both blocks move together faster and faster. Assume both strings are inextensible and massless.



Q4: Compare the magnitude of the acceleration of block A to block B: aA = aB
Q5: Explain. they are accelerating at the same speed

Q6: Compare the magnitude of $T_{\text{on A by 1}}$ to $T_{\text{on 1 by A}}$. T(on A by 1) > T(on 1 by A)
Q7: Explain. the string is pulling A and B

Q8: Compare the magnitude of $T_{\text{on A by 2}}$ to $T_{\text{on B by 2}}$. T(on A by 2) = T(on B by 2)
Q9: Explain. the force is pulling on block a as hard as it is pulling on block b. the string is connected to the 2 blocks, and uses A's force to pull B

Q10: Compare the magnitude of $T_{\text{on A by 1}}$ to $T_{\text{on B by 2}}$. T(on A by 1) > T(on B by 2)
Q11: Explain. A has greater mass than block B

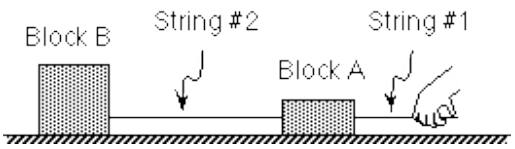
Consider the same situation as above. (Recall that there is no friction between the table and blocks.)

Q12. Determine the tension in string 2 if the hand exerts a force of 12 N, the mass of block A is 2 kg, and the mass of block B is 4 kg. (Only include the value in your answer; do not include units in your answer.) 24

Q13. Explain. they have the same acceleration, and string 3 is only pulling block B, so t2 = m2a

Student#: **NAME**

Two blocks of unequal mass ($m_A < m_B$) are connected by a string (string 2). The blocks are placed on a frictionless table and pulled by another string (string 1) that is attached to block A such that both blocks move together faster and faster. Assume both strings are inextensible and massless.



Q4: Compare the magnitude of the acceleration of block A to block B: aA = aB
Q5: Explain. In a system, acceleration is always the same.

Q6: Compare the magnitude of $T_{\text{on A by 1}}$ to $T_{\text{on 1 by A}}$. T(on A by 1) = T(on 1 by A)
Q7: Explain. Third Law pairs

Q8: Compare the magnitude of $T_{\text{on A by 2}}$ to $T_{\text{on B by 2}}$. 999
Q9: Explain. Because the object is accelerating

Q10: Compare the magnitude of $T_{\text{on A by 1}}$ to $T_{\text{on B by 2}}$. 999
Q11: Explain. Yes because A has a greater mass.

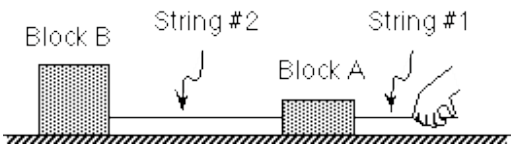
Consider the same situation as above. (Recall that there is no friction between the table and blocks.)

Q12. Determine the tension in string 2 if the hand exerts a force of 12 N, the mass of block A is 2 kg, and the mass of block B is 4 kg. (Only include the value in your answer; do not include units in your answer.) 14 N

Q13. Explain. This is because first you find the accleration of the system is 3.5 m/s2 and then T2 = m2a will give you as a tension of 14N

Student#: **NAME**

Two blocks of unequal mass ($m_A < m_B$) are connected by a string (string 2). The blocks are placed on a frictionless table and pulled by another string (string 1) that is attached to block A such that both blocks move together faster and faster. Assume both strings are inextensible and massless.



Q4: Compare the magnitude of the acceleration of block A to block B: aA > aB

Q5: Explain. F = ma.The mass of A is < the mass of B, so the acceleration of A is > B. The forces are equal since they move together at increasing speed.

Q6: Compare the magnitude of $T_{\text{on A by 1}}$ to $T_{\text{on 1 by A}}$. T(on A by 1) = T(on 1 by A)

Q7: Explain. They are third law pairs, so they are equal in magnitude.

Q8: Compare the magnitude of $T_{\text{on A by 2}}$ to $T_{\text{on B by 2}}$. T(on A by 2) = T(on B by 2)

Q9: Explain. The tension forces described above cancel out because F = ma. Acceleration in the rope itself is 0.

Q10: Compare the magnitude of $T_{\text{on A by 1}}$ to $T_{\text{on B by 2}}$. T(on A by 1) > T(on B by 2)

Q11: Explain. While rope 2 only has to pull block B, rope 1 must pull B and A. Therefore, the force Fa1 must be greater than Fb2.

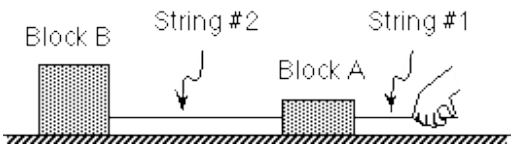
Consider the same situation as above. (Recall that there is no friction between the table and blocks.)

Q12. Determine the tension in string 2 if the hand exerts a force of 12 N, the mass of block A is 2 kg, and the mass of block B is 4 kg. (Only include the value in your answer; do not include units in your answer.) 8

Q13. Explain. I calculated a for the entire system. (m + M)*a = T + 12 - T => a = 2. Then I summed up the x forces for block A. m * a = 12 - T => T = 12 - 2 * 2. T = 8.

Student#: **NAME**

Two blocks of unequal mass ($m_A < m_B$) are connected by a string (string 2). The blocks are placed on a frictionless table and pulled by another string (string 1) that is attached to block A such that both blocks move together faster and faster. Assume both strings are inextensible and massless.



Q4: Compare the magnitude of the acceleration of block A to block B: aA > aB

Q5: Explain. A larger amount of force is needed on smaller mass block A in order to move larger mass block B, thus, block A will naturally accelerate.

Q6: Compare the magnitude of $T_{\text{on A by 1}}$ to $T_{\text{on 1 by A}}$. T(on A by 1) > T(on 1 by A)

Q7: Explain. If the Tension on A by 1 was equal to the Tension on 1 by A, these would be 'action-reaction' pairs, and as a result, this entire system would remain stationary. But that is not so. Also, block A accelerates to the right

Q8: Compare the magnitude of $T_{\text{on A by 2}}$ to $T_{\text{on B by 2}}$. T(on A by 2) < T(on B by 2)

Q9: Explain. string 2 is struggling to move block B, not block A

Q10: Compare the magnitude of $T_{\text{on A by 1}}$ to $T_{\text{on B by 2}}$. T(on A by 1) < T(on B by 2)

Q11: Explain. If the Tension on A by 1 was equal to Tension on B by 2, then these would be 'action-reaction' pairs, and as a result, the system would remain stationary. But this is not the case. String 2 is strugglign to move block B whereas string 1 moves block A with ease.

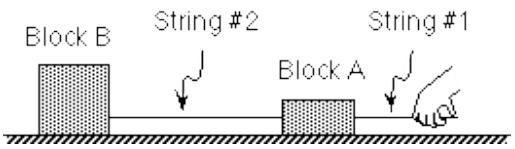
Consider the same situation as above. (Recall that there is no friction between the table and blocks.)

Q12. Determine the tension in string 2 if the hand exerts a force of 12 N, the mass of block A is 2 kg, and the mass of block B is 4 kg. (Only include the value in your answer; do not include units in your answer.) 24

Q13. Explain. accerlation of block A = Force of block A / mass of block A.... therefore, accel. of A = 6 m/s^2, therefore, T of 2 = m of 2 * accel. of 2, therefore = 4*6 = 24 N

Student#: **NAME**

Two blocks of unequal mass ($m_A < m_B$) are connected by a string (string 2). The blocks are placed on a frictionless table and pulled by another string (string 1) that is attached to block A such that both blocks move together faster and faster. Assume both strings are inextensible and massless.



Q4: Compare the magnitude of the acceleration of block A to block B: aA < aB
Q5: Explain. I used Newton's 2nd law. F=ma

Q6: Compare the magnitude of $T_{\text{on A by 1}}$ to $T_{\text{on 1 by A}}$. T(on A by 1) > T(on 1 by A)
Q7: Explain. Again, using Newton's 2nd law, along with the 3rd law

Q8: Compare the magnitude of $T_{\text{on A by 2}}$ to $T_{\text{on B by 2}}$. T(on A by 2) = T(on B by 2)
Q9: Explain. Newton's 3rd law

Q10: Compare the magnitude of $T_{\text{on A by 1}}$ to $T_{\text{on B by 2}}$. T(on A by 1) = T(on B by 2)
Q11: Explain. Newton's third law, and Fnet = ma

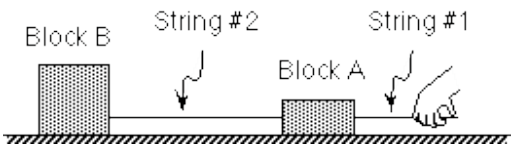
Consider the same situation as above. (Recall that there is no friction between the table and blocks.)

Q12. Determine the tension in string 2 if the hand exerts a force of 12 N, the mass of block A is 2 kg, and the mass of block B is 4 kg. (Only include the value in your answer; do not include units in your answer.) 24

Q13. Explain. the acceleration is the same, so by using F = ma, i was able to determine the acceleration, and then determine the mass of block B

Student#: **NAME**

Two blocks of unequal mass ($m_A < m_B$) are connected by a string (string 2). The blocks are placed on a frictionless table and pulled by another string (string 1) that is attached to block A such that both blocks move together faster and faster. Assume both strings are inextensible and massless.



Q4: Compare the magnitude of the acceleration of block A to block B: aA < aB

Q5: Explain. because the force that is acting on it is lesser than the force that acts on B

Q6: Compare the magnitude of $T_{\text{on A by 1}}$ to $T_{\text{on 1 by A}}$. T(on A by 1) = T(on 1 by A)

Q7: Explain. because they are action reaction force, therefore, they have to be the same in magnitude

Q8: Compare the magnitude of $T_{\text{on A by 2}}$ to $T_{\text{on B by 2}}$. T(on A by 2) < T(on B by 2)

Q9: Explain. because block B has a greater mass than block A

Q10: Compare the magnitude of $T_{\text{on A by 1}}$ to $T_{\text{on B by 2}}$. T(on A by 1) = T(on B by 2)

Q11: Explain. because the overcoming of the mass and the force acting on the blocks

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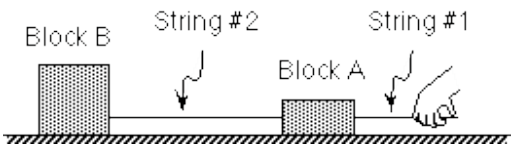
Consider the same situation as above. (Recall that there is no friction between the table and blocks.)

Q12. Determine the tension in string 2 if the hand exerts a force of 12 N, the mass of block A is 2 kg, and the mass of block B is 4 kg. (Only include the value in your answer; do not include units in your answer.) 6

Q13. Explain. because mass B is twice that of mass A

Student#: **NAME**

Two blocks of unequal mass ($m_A < m_B$) are connected by a string (string 2). The blocks are placed on a frictionless table and pulled by another string (string 1) that is attached to block A such that both blocks move together faster and faster. Assume both strings are inextensible and massless.



Q4: Compare the magnitude of the acceleration of block A to block B: aA > aB

Q5: Explain. I chose this option because the mass of block A is less then the mass of block B, thus the force exerted will have more of an effect on block A.

Q6: Compare the magnitude of $T_{\text{on A by 1}}$ to $T_{\text{on 1 by A}}$. T(on A by 1) > T(on 1 by A)

Q7: Explain. I chose this because the hand is pulling directly on string one, thus exerting a greater force on it.

Q8: Compare the magnitude of $T_{\text{on A by 2}}$ to $T_{\text{on B by 2}}$. T(on A by 2) = T(on B by 2)

Q9: Explain. I chose that they were equal because this force would be an equal yet opposite reaction.

Q10: Compare the magnitude of $T_{\text{on A by 1}}$ to $T_{\text{on B by 2}}$. T(on A by 1) > T(on B by 2)

Q11: Explain. I chose this because the hand exerts the origional force directly on block A, where as string 2 doesn't have the hand exerting any force on it at all.

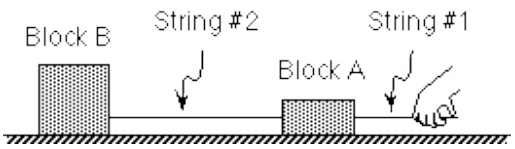
Consider the same situation as above. (Recall that there is no friction between the table and blocks.)

Q12. Determine the tension in string 2 if the hand exerts a force of 12 N, the mass of block A is 2 kg, and the mass of block B is 4 kg. (Only include the value in your answer; do not include units in your answer.) 6

Q13. Explain. I chose this answer because it is the sum of the masses of the two blocks.

Student#: **NAME**

Two blocks of unequal mass ($m_A < m_B$) are connected by a string (string 2). The blocks are placed on a frictionless table and pulled by another string (string 1) that is attached to block A such that both blocks move together faster and faster. Assume both strings are inextensible and massless.



Q4: Compare the magnitude of the acceleration of block A to block B: aA = aB
Q5: Explain. they are attached

Q6: Compare the magnitude of $T_{\text{on A by 1}}$ to $T_{\text{on 1 by A}}$. T(on A by 1) > T(on 1 by A)
Q7: Explain. the force of the hand is more than the other string

Q8: Compare the magnitude of $T_{\text{on A by 2}}$ to $T_{\text{on B by 2}}$. T(on A by 2) > T(on B by 2)
Q9: Explain. well, tension is usually more

Q10: Compare the magnitude of $T_{\text{on A by 1}}$ to $T_{\text{on B by 2}}$. T(on A by 1) < T(on B by 2)
Q11: Explain. well, silly it would be the opposite

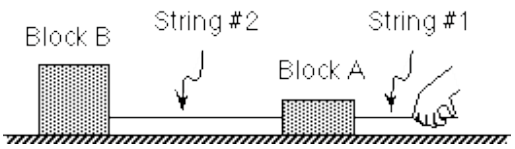
Consider the same situation as above. (Recall that there is no friction between the table and blocks.)

Q12. Determine the tension in string 2 if the hand exerts a force of 12 N, the mass of block A is 2 kg, and the mass of block B is 4 kg. (Only include the value in your answer; do not include units in your answer.) 8

Q13. Explain. T=mF/(m+M)

Student#: **NAME**

Two blocks of unequal mass ($m_A < m_B$) are connected by a string (string 2). The blocks are placed on a frictionless table and pulled by another string (string 1) that is attached to block A such that both blocks move together faster and faster. Assume both strings are inextensible and massless.



Q4: Compare the magnitude of the acceleration of block A to block B: aA = aB

Q5: Explain. since both blocks travel together. the acceleration of both are the same.

Q6: Compare the magnitude of $T_{\text{on A by 1}}$ to $T_{\text{on 1 by A}}$. T(on A by 1) = T(on 1 by A)

Q7: Explain. third law pair.

Q8: Compare the magnitude of $T_{\text{on A by 2}}$ to $T_{\text{on B by 2}}$. T(on A by 2) = T(on B by 2)

Q9: Explain. third law pair.

Q10: Compare the magnitude of $T_{\text{on A by 1}}$ to $T_{\text{on B by 2}}$. T(on A by 1) > T(on B by 2)

Q11: Explain. since string 1 pulls both A and B and string 2 only pulls on B.

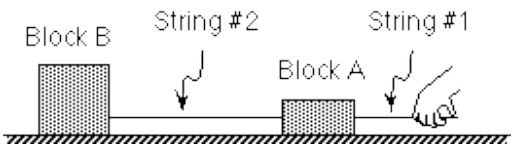
Consider the same situation as above. (Recall that there is no friction between the table and blocks.)

Q12. Determine the tension in string 2 if the hand exerts a force of 12 N, the mass of block A is 2 kg, and the mass of block B is 4 kg. (Only include the value in your answer; do not include units in your answer.) 8

Q13. Explain. 12 N divided by 6 kg equals acceleration of system. 2 m/s^2 times 4 kg equals 8 N.

Student#: **NAME**

Two blocks of unequal mass ($m_A < m_B$) are connected by a string (string 2). The blocks are placed on a frictionless table and pulled by another string (string 1) that is attached to block A such that both blocks move together faster and faster. Assume both strings are inextensible and massless.



Q4: Compare the magnitude of the acceleration of block A to block B: aA = aB
Q5: Explain. it is all one system

Q6: Compare the magnitude of $T_{\text{on A by 1}}$ to $T_{\text{on 1 by A}}$. T(on A by 1) < T(on 1 by A)
Q7: Explain. the tenstion of the string has to pull both blocks

Q8: Compare the magnitude of $T_{\text{on A by 2}}$ to $T_{\text{on B by 2}}$. T(on A by 2) < T(on B by 2)
Q9: Explain. the block is bigger, thus more mass, thus more force is required

Q10: Compare the magnitude of $T_{\text{on A by 1}}$ to $T_{\text{on B by 2}}$. T(on A by 1) < T(on B by 2)
Q11: Explain. the block is of a greater mass, while bothblocks are moving at a standard rate, thus the force on the bigger block is greater.

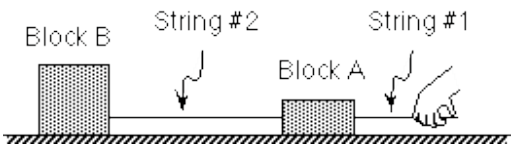
Consider the same situation as above. (Recall that there is no friction between the table and blocks.)

Q12. Determine the tension in string 2 if the hand exerts a force of 12 N, the mass of block A is 2 kg, and the mass of block B is 4 kg. (Only include the value in your answer; do not include units in your answer.) 27.2

Q13. Explain. take mass times gravity to find the force needed to pull block b, then subtract the force used to pull block a.

Student#: **NAME**

Two blocks of unequal mass ($m_A < m_B$) are connected by a string (string 2). The blocks are placed on a frictionless table and pulled by another string (string 1) that is attached to block A such that both blocks move together faster and faster. Assume both strings are inextensible and massless.



Q4: Compare the magnitude of the acceleration of block A to block B: aA = aB

Q5: Explain. Since the masses are connected together by the string they move with the same velocity as one system

Q6: Compare the magnitude of $T_{\text{on A by 1}}$ to $T_{\text{on 1 by A}}$. T(on A by 1) < T(on 1 by A)

Q7: Explain. tension will be the same

Q8: Compare the magnitude of $T_{\text{on A by 2}}$ to $T_{\text{on B by 2}}$. T(on A by 2) = T(on B by 2)

Q9: Explain. its tension

Q10: Compare the magnitude of $T_{\text{on A by 1}}$ to $T_{\text{on B by 2}}$. T(on A by 1) > T(on B by 2)

Q11: Explain. because massA<massB

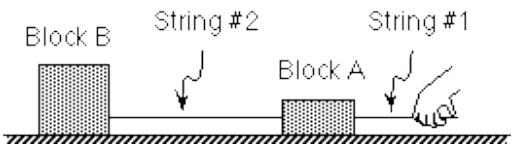
Consider the same situation as above. (Recall that there is no friction between the table and blocks.)

Q12. Determine the tension in string 2 if the hand exerts a force of 12 N, the mass of block A is 2 kg, and the mass of block B is 4 kg. (Only include the value in your answer; do not include units in your answer.) 12

Q13. Explain. tension will be the same

Student#: **NAME**

Two blocks of unequal mass ($m_A < m_B$) are connected by a string (string 2). The blocks are placed on a frictionless table and pulled by another string (string 1) that is attached to block A such that both blocks move together faster and faster. Assume both strings are inextensible and massless.



Q4: Compare the magnitude of the acceleration of block A to block B: aA = aB
Q5: Explain. They are moving together at the same speed

Q6: Compare the magnitude of $T_{\text{on A by 1}}$ to $T_{\text{on 1 by A}}$. T(on A by 1) = T(on 1 by A)
Q7: Explain. They are force pairs

Q8: Compare the magnitude of $T_{\text{on A by 2}}$ to $T_{\text{on B by 2}}$. T(on A by 2) = T(on B by 2)
Q9: Explain. These are also force pairs

Q10: Compare the magnitude of $T_{\text{on A by 1}}$ to $T_{\text{on B by 2}}$. T(on A by 1) > T(on B by 2)
Q11: Explain. This force includes the mases of both blocks and is therefore greater

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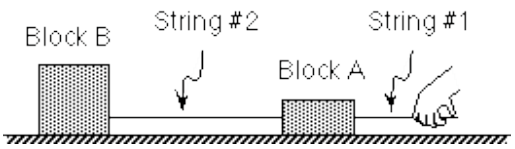
Consider the same situation as above. (Recall that there is no friction between the table and blocks.)

Q12. Determine the tension in string 2 if the hand exerts a force of 12 N, the mass of block A is 2 kg, and the mass of block B is 4 kg. (Only include the value in your answer; do not include units in your answer.) 40

Q13. Explain. F = ma, so I figured out the acceleration of the system, and multiplied that by 4 kg.

Student#: **NAME**

Two blocks of unequal mass ($m_A < m_B$) are connected by a string (string 2). The blocks are placed on a frictionless table and pulled by another string (string 1) that is attached to block A such that both blocks move together faster and faster. Assume both strings are inextensible and massless.



Q4: Compare the magnitude of the acceleration of block A to block B: aA > aB

Q5: Explain. because block B is bigger so F=ma

Q6: Compare the magnitude of $T_{\text{on A by 1}}$ to $T_{\text{on 1 by A}}$. T(on A by 1) > T(on 1 by A)

Q7: Explain. again because block B is bigger so has to pull more.also because it is teh combination of block A and B

Q8: Compare the magnitude of $T_{\text{on A by 2}}$ to $T_{\text{on B by 2}}$. 999

Q9: Explain.

Q10: Compare the magnitude of $T_{\text{on A by 1}}$ to $T_{\text{on B by 2}}$. T(on A by 1) > T(on B by 2)

Q11: Explain. because it is pulling against and friction

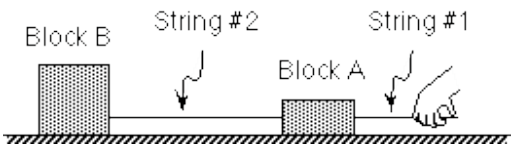
Consider the same situation as above. (Recall that there is no friction between the table and blocks.)

Q12. Determine the tension in string 2 if the hand exerts a force of 12 N, the mass of block A is 2 kg, and the mass of block B is 4 kg. (Only include the value in your answer; do not include units in your answer.) 4

Q13. Explain. i just saw that the tension must equal because A goes against B so it is the tension by B minus tension A

Student#: **NAME**

Two blocks of unequal mass ($m_A < m_B$) are connected by a string (string 2). The blocks are placed on a frictionless table and pulled by another string (string 1) that is attached to block A such that both blocks move together faster and faster. Assume both strings are inextensible and massless.



Q4: Compare the magnitude of the acceleration of block A to block B: aA = aB

Q5: Explain. Both blocks are being pulled by the same force and are attached, therefore, they must have equal acceleration.

Q6: Compare the magnitude of $T_{\text{on A by 1}}$ to $T_{\text{on 1 by A}}$. T(on A by 1) > T(on 1 by A)

Q7: Explain. Because the system is in motion in the same direction as the force on A by the string 1, that force must be greater than the 3rd law reaction pair force.

Q8: Compare the magnitude of $T_{\text{on A by 2}}$ to $T_{\text{on B by 2}}$. T(on A by 2) = T(on B by 2)

Q9: Explain. This force must equal because the entire system has equal acceleration.

Q10: Compare the magnitude of $T_{\text{on A by 1}}$ to $T_{\text{on B by 2}}$. T(on A by 1) = T(on B by 2)

Q11: Explain. Because the entire system is in motion with the same acceleration, the forces must be the same.

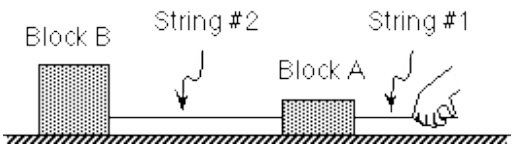
Consider the same situation as above. (Recall that there is no friction between the table and blocks.)

Q12. Determine the tension in string 2 if the hand exerts a force of 12 N, the mass of block A is 2 kg, and the mass of block B is 4 kg. (Only include the value in your answer; do not include units in your answer.) 24

Q13. Explain. The force must be twice as large as the other force because it must act upon a mass twice as large and get it to move at the same speed as the rest of the system.

Student#: **NAME**

Two blocks of unequal mass ($m_A < m_B$) are connected by a string (string 2). The blocks are placed on a frictionless table and pulled by another string (string 1) that is attached to block A such that both blocks move together faster and faster. Assume both strings are inextensible and massless.



Q4: Compare the magnitude of the acceleration of block A to block B: aA < aB
Q5: Explain. Block A weighs more than Block B so its acceleration is greater.

Q6: Compare the magnitude of $T_{\text{on A by 1}}$ to $T_{\text{on 1 by A}}$. T(on A by 1) = T(on 1 by A)
Q7: Explain. They are action-reaction forces by newton's third law.

Q8: Compare the magnitude of $T_{\text{on A by 2}}$ to $T_{\text{on B by 2}}$. T(on A by 2) < T(on B by 2)
Q9: Explain. Block B weighs more than Block A.

Q10: Compare the magnitude of $T_{\text{on A by 1}}$ to $T_{\text{on B by 2}}$. T(on A by 1) < T(on B by 2)
Q11: Explain. Block B weighs more than Block A.

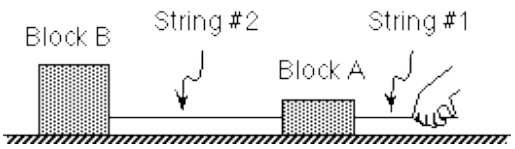
Consider the same situation as above. (Recall that there is no friction between the table and blocks.)

Q12. Determine the tension in string 2 if the hand exerts a force of 12 N, the mass of block A is 2 kg, and the mass of block B is 4 kg. (Only include the value in your answer; do not include units in your answer.) I don't know

Q13. Explain. I don't know.

Student#: **NAME**

Two blocks of unequal mass ($m_A < m_B$) are connected by a string (string 2). The blocks are placed on a frictionless table and pulled by another string (string 1) that is attached to block A such that both blocks move together faster and faster. Assume both strings are inextensible and massless.



Q4: Compare the magnitude of the acceleration of block A to block B: aA = aB

Q5: Explain. Both blocks have accelerations of equal magnitudes because they are part of the same system.

Q6: Compare the magnitude of $T_{\text{on A by 1}}$ to $T_{\text{on 1 by A}}$. T(on A by 1) = T(on 1 by A)

Q7: Explain. Newton's third law action-reation pair

Q8: Compare the magnitude of $T_{\text{on A by 2}}$ to $T_{\text{on B by 2}}$. T(on A by 2) < T(on B by 2)

Q9: Explain. block B is more massive than block A

Q10: Compare the magnitude of $T_{\text{on A by 1}}$ to $T_{\text{on B by 2}}$. T(on A by 1) < T(on B by 2)

Q11: Explain. block B is more massive than block A

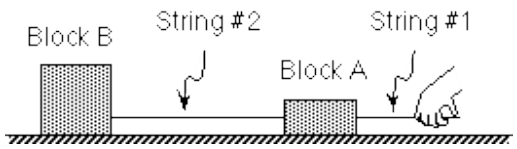
Consider the same situation as above. (Recall that there is no friction between the table and blocks.)

Q12. Determine the tension in string 2 if the hand exerts a force of 12 N, the mass of block A is 2 kg, and the mass of block B is 4 kg. (Only include the value in your answer; do not include units in your answer.) 8

Q13. Explain. string 2 is pulling 2/3 the mass as 1, so the force on 2 is 2/3 of the force on 1

Student#: **NAME**

Two blocks of unequal mass ($m_A < m_B$) are connected by a string (string 2). The blocks are placed on a frictionless table and pulled by another string (string 1) that is attached to block A such that both blocks move together faster and faster. Assume both strings are inextensible and massless.



Q4: Compare the magnitude of the acceleration of block A to block B: aA = aB

Q5: Explain. A and B are connected, therefore they move with the same acceleration.

Q6: Compare the magnitude of $T_{\text{on A by 1}}$ to $T_{\text{on 1 by A}}$. T(on A by 1) = T(on 1 by A)

Q7: Explain. They are action-reaction forces and are = according to Newton's 3rd law.

Q8: Compare the magnitude of $T_{\text{on A by 2}}$ to $T_{\text{on B by 2}}$. T(on A by 2) = T(on B by 2)

Q9: Explain. Newton's 3rd law.

Q10: Compare the magnitude of $T_{\text{on A by 1}}$ to $T_{\text{on B by 2}}$. T(on A by 1) > T(on B by 2)

Q11: Explain. The tension of T on A is = to acceleration x Mass of A and B *string 1) as opposed to acceleration x B (string 2)

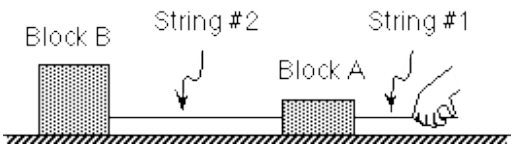
Consider the same situation as above. (Recall that there is no friction between the table and blocks.)

Q12. Determine the tension in string 2 if the hand exerts a force of 12 N, the mass of block A is 2 kg, and the mass of block B is 4 kg. (Only include the value in your answer; do not include units in your answer.) 6

Q13. Explain. The value can only be as big as the smaller force. In this case it's 6 Newtons.

Student#: **NAME**

Two blocks of unequal mass ($m_A < m_B$) are connected by a string (string 2). The blocks are placed on a frictionless table and pulled by another string (string 1) that is attached to block A such that both blocks move together faster and faster. Assume both strings are inextensible and massless.



Q4: Compare the magnitude of the acceleration of block A to block B: aA = aB
Q5: Explain. system accels at 1 rate

Q6: Compare the magnitude of $T_{\text{on A by 1}}$ to $T_{\text{on 1 by A}}$. T(on A by 1) = T(on 1 by A)
Q7: Explain. newton force pair

Q8: Compare the magnitude of $T_{\text{on A by 2}}$ to $T_{\text{on B by 2}}$. T(on A by 2) > T(on B by 2)
Q9: Explain. i really am not sure, but i think it is because of mass

Q10: Compare the magnitude of $T_{\text{on A by 1}}$ to $T_{\text{on B by 2}}$. T(on A by 1) > T(on B by 2)
Q11: Explain. the force is differentg so the acceleration is the same

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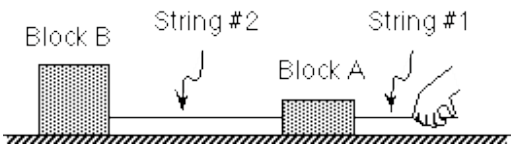
Consider the same situation as above. (Recall that there is no friction between the table and blocks.)

Q12. Determine the tension in string 2 if the hand exerts a force of 12 N, the mass of block A is 2 kg, and the mass of block B is 4 kg. (Only include the value in your answer; do not include units in your answer.) 10

Q13. Explain. average due to mass difference

Student#: **NAME**

Two blocks of unequal mass ($m_A < m_B$) are connected by a string (string 2). The blocks are placed on a frictionless table and pulled by another string (string 1) that is attached to block A such that both blocks move together faster and faster. Assume both strings are inextensible and massless.



Q4: Compare the magnitude of the acceleration of block A to block B: aA = aB
Q5: Explain. they are moving as a system so they have the same acceleration

Q6: Compare the magnitude of $T_{\text{on A by 1}}$ to $T_{\text{on 1 by A}}$. T(on A by 1) = T(on 1 by A)
Q7: Explain. they are third law pairs

Q8: Compare the magnitude of $T_{\text{on A by 2}}$ to $T_{\text{on B by 2}}$. T(on A by 2) = T(on B by 2)
Q9: Explain. third law pairs

Q10: Compare the magnitude of $T_{\text{on A by 1}}$ to $T_{\text{on B by 2}}$. T(on A by 1) < T(on B by 2)
Q11: Explain. F=ma there is more weight pulling on B than there is on A

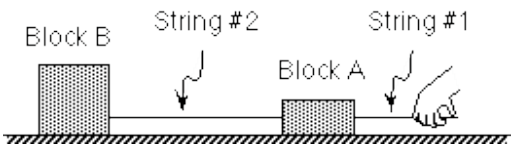
Consider the same situation as above. (Recall that there is no friction between the table and blocks.)

Q12. Determine the tension in string 2 if the hand exerts a force of 12 N, the mass of block A is 2 kg, and the mass of block B is 4 kg. (Only include the value in your answer; do not include units in your answer.) 19.6

Q13. Explain. If you take the mass of B, multiply it by 9.8 subtract the weight of A and you get the differance of forces.

Student#: **NAME**

Two blocks of unequal mass ($m_A < m_B$) are connected by a string (string 2). The blocks are placed on a frictionless table and pulled by another string (string 1) that is attached to block A such that both blocks move together faster and faster. Assume both strings are inextensible and massless.



Q4: Compare the magnitude of the acceleration of block A to block B: aA = aB

Q5: Explain. because the acceleration of the whole system are all equal....but the force is diffrent according to their mass

Q6: Compare the magnitude of $T_{\text{on A by 1}}$ to $T_{\text{on 1 by A}}$. T(on A by 1) = T(on 1 by A)

Q7: Explain. because the string tension is the force exerted by the hand on the block

Q8: Compare the magnitude of $T_{\text{on A by 2}}$ to $T_{\text{on B by 2}}$. T(on A by 2) = T(on B by 2)

Q9: Explain. tension is equal to the force on block 2

Q10: Compare the magnitude of $T_{\text{on A by 1}}$ to $T_{\text{on B by 2}}$. T(on A by 1) > T(on B by 2)

Q11: Explain. because on T1 they pull both m1 and m2.....

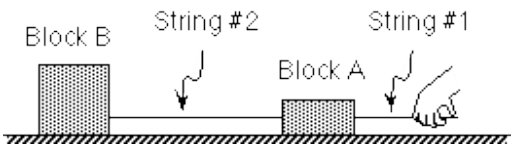
Consider the same situation as above. (Recall that there is no friction between the table and blocks.)

Q12. Determine the tension in string 2 if the hand exerts a force of 12 N, the mass of block A is 2 kg, and the mass of block B is 4 kg. (Only include the value in your answer; do not include units in your answer.) 8

Q13. Explain. we find the accelration first and since string 2 only pull m2 then we just times it with mass 2/

Student#: **NAME**

Two blocks of unequal mass ($m_A < m_B$) are connected by a string (string 2). The blocks are placed on a frictionless table and pulled by another string (string 1) that is attached to block A such that both blocks move together faster and faster. Assume both strings are inextensible and massless.



Q4: Compare the magnitude of the acceleration of block A to block B: aA = aB

Q5: Explain. there is no friction, and the force is the same for the two blocks

Q6: Compare the magnitude of $T_{\text{on A by 1}}$ to $T_{\text{on 1 by A}}$. T(on A by 1) = T(on 1 by A)

Q7: Explain. in order for the block to be pulled the force (tension) has to equal the force(tension) from the other block

Q8: Compare the magnitude of $T_{\text{on A by 2}}$ to $T_{\text{on B by 2}}$. T(on A by 2) = T(on B by 2)

Q9: Explain. the string exerts only one force on both of the blocks, they must be the same

Q10: Compare the magnitude of $T_{\text{on A by 1}}$ to $T_{\text{on B by 2}}$. T(on A by 1) > T(on B by 2)

Q11: Explain. because

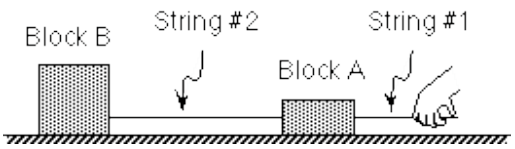
Consider the same situation as above. (Recall that there is no friction between the table and blocks.)

Q12. Determine the tension in string 2 if the hand exerts a force of 12 N, the mass of block A is 2 kg, and the mass of block B is 4 kg. (Only include the value in your answer; do not include units in your answer.) 12

Q13. Explain. the mass and force is the same for both so it has to equal the force

Student#: **NAME**

Two blocks of unequal mass ($m_A < m_B$) are connected by a string (string 2). The blocks are placed on a frictionless table and pulled by another string (string 1) that is attached to block A such that both blocks move together faster and faster. Assume both strings are inextensible and massless.



Q4: Compare the magnitude of the acceleration of block A to block B: aA = aB
Q5: Explain. They are part of the same system, so their acceleration will be equal

Q6: Compare the magnitude of $T_{\text{on A by 1}}$ to $T_{\text{on 1 by A}}$. T(on A by 1) = T(on 1 by A)
Q7: Explain. These forces are action-reaction pairs so their magnitude will be equal

Q8: Compare the magnitude of $T_{\text{on A by 2}}$ to $T_{\text{on B by 2}}$. T(on A by 2) = T(on B by 2)
Q9: Explain. These forces are equal because there is no energy used in the string because it is massless -the force is simply transferred through it

Q10: Compare the magnitude of $T_{\text{on A by 1}}$ to $T_{\text{on B by 2}}$. T(on A by 1) > T(on B by 2)
Q11: Explain. The force on A is greater because it has more mass (the mass of B is included) while the force on B requires only enough to just move B

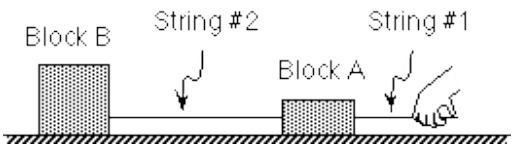
Consider the same situation as above. (Recall that there is no friction between the table and blocks.)

Q12. Determine the tension in string 2 if the hand exerts a force of 12 N, the mass of block A is 2 kg, and the mass of block B is 4 kg. (Only include the value in your answer; do not include units in your answer.) 2

Q13. Explain. don't know

Student#: **NAME**

Two blocks of unequal mass ($m_A < m_B$) are connected by a string (string 2). The blocks are placed on a frictionless table and pulled by another string (string 1) that is attached to block A such that both blocks move together faster and faster. Assume both strings are inextensible and massless.



Q4: Compare the magnitude of the acceleration of block A to block B: aA = aB

Q5: Explain. they are being pulled at the same velocity so their accelerations are the same...they are in the same system

Q6: Compare the magnitude of $T_{\text{on A by 1}}$ to $T_{\text{on 1 by A}}$. T(on A by 1) = T(on 1 by A)

Q7: Explain. they are equal and opposite forces

Q8: Compare the magnitude of $T_{\text{on A by 2}}$ to $T_{\text{on B by 2}}$. T(on A by 2) = T(on B by 2)

Q9: Explain. equal and opposite forces

Q10: Compare the magnitude of $T_{\text{on A by 1}}$ to $T_{\text{on B by 2}}$. T(on A by 1) > T(on B by 2)

Q11: Explain. string one supports both masses...so greater mass means greater force

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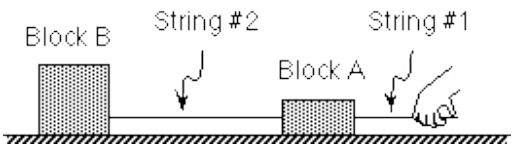
Consider the same situation as above. (Recall that there is no friction between the table and blocks.)

Q12. Determine the tension in string 2 if the hand exerts a force of 12 N, the mass of block A is 2 kg, and the mass of block B is 4 kg. (Only include the value in your answer; do not include units in your answer.) 8

Q13. Explain. the acceleration must be 2 if the hand pulls 6kg with a 12N force. so in string 2 it pulls 4kg and the force is 4*2

Student#: **NAME**

Two blocks of unequal mass ($m_A < m_B$) are connected by a string (string 2). The blocks are placed on a frictionless table and pulled by another string (string 1) that is attached to block A such that both blocks move together faster and faster. Assume both strings are inextensible and massless.



Q4: Compare the magnitude of the acceleration of block A to block B: aA = aB

Q5: Explain. S2 has a greater T than S1 so the a are equal while the masses are unequal

Q6: Compare the magnitude of $T_{\text{on A by 1}}$ to $T_{\text{on 1 by A}}$. T(on A by 1) = T(on 1 by A)

Q7: Explain. They are 3rd law pairs

Q8: Compare the magnitude of $T_{\text{on A by 2}}$ to $T_{\text{on B by 2}}$. T(on A by 2) > T(on B by 2)

Q9: Explain. Mass of A is greater than the other mass

Q10: Compare the magnitude of $T_{\text{on A by 1}}$ to $T_{\text{on B by 2}}$. T(on A by 1) > T(on B by 2)

Q11: Explain. Ma is greater than Mb

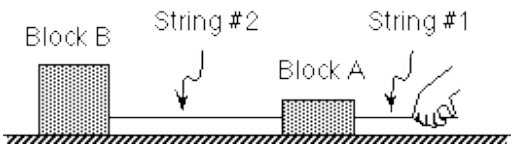
Consider the same situation as above. (Recall that there is no friction between the table and blocks.)

Q12. Determine the tension in string 2 if the hand exerts a force of 12 N, the mass of block A is 2 kg, and the mass of block B is 4 kg. (Only include the value in your answer; do not include units in your answer.) 24

Q13. Explain. 12/2 = 6 so 4*6=24

Student#: **NAME**

Two blocks of unequal mass ($m_A < m_B$) are connected by a string (string 2). The blocks are placed on a frictionless table and pulled by another string (string 1) that is attached to block A such that both blocks move together faster and faster. Assume both strings are inextensible and massless.



Q4: Compare the magnitude of the acceleration of block A to block B: aA = aB
Q5: Explain. Since they are connected they move at the same acceleration.

Q6: Compare the magnitude of $T_{\text{on A by 1}}$ to $T_{\text{on 1 by A}}$. T(on A by 1) = T(on 1 by A)
Q7: Explain. They are newton's third law pairs so they are equal.

Q8: Compare the magnitude of $T_{\text{on A by 2}}$ to $T_{\text{on B by 2}}$. T(on A by 2) < T(on B by 2)
Q9: Explain. B has more mass so the string has a greater force.

Q10: Compare the magnitude of $T_{\text{on A by 1}}$ to $T_{\text{on B by 2}}$. T(on A by 1) = T(on B by 2)
Q11: Explain. It has the force of the had causing it to get started.

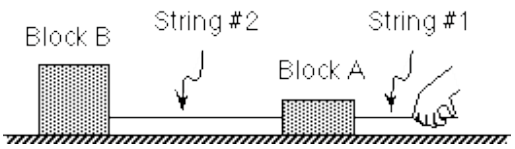
Consider the same situation as above. (Recall that there is no friction between the table and blocks.)

Q12. Determine the tension in string 2 if the hand exerts a force of 12 N, the mass of block A is 2 kg, and the mass of block B is 4 kg. (Only include the value in your answer; do not include units in your answer.) 2

Q13. Explain. F=ma

Student#: **NAME**

Two blocks of unequal mass ($m_A < m_B$) are connected by a string (string 2). The blocks are placed on a frictionless table and pulled by another string (string 1) that is attached to block A such that both blocks move together faster and faster. Assume both strings are inextensible and massless.



Q4: Compare the magnitude of the acceleration of block A to block B: aA = aB
Q5: Explain. They move together because they are connected

Q6: Compare the magnitude of $T_{\text{on A by 1}}$ to $T_{\text{on 1 by A}}$. T(on A by 1) = T(on 1 by A)
Q7: Explain. They are equal and opposite

Q8: Compare the magnitude of $T_{\text{on A by 2}}$ to $T_{\text{on B by 2}}$. T(on A by 2) < T(on B by 2)
Q9: Explain. Block A weighs less (less mass)

Q10: Compare the magnitude of $T_{\text{on A by 1}}$ to $T_{\text{on B by 2}}$. T(on A by 1) < T(on B by 2)
Q11: Explain. Mass of blocks, same situation

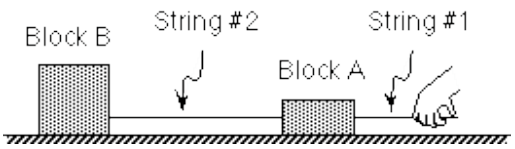
Consider the same situation as above. (Recall that there is no friction between the table and blocks.)

Q12. Determine the tension in string 2 if the hand exerts a force of 12 N, the mass of block A is 2 kg, and the mass of block B is 4 kg. (Only include the value in your answer; do not include units in your answer.) 8

Q13. Explain. F=ma, they accelerate at 2 m/s2, and the block B weighs 4kg.

Student#: **NAME**

Two blocks of unequal mass ($m_A < m_B$) are connected by a string (string 2). The blocks are placed on a frictionless table and pulled by another string (string 1) that is attached to block A such that both blocks move together faster and faster. Assume both strings are inextensible and massless.



Q4: Compare the magnitude of the acceleration of block A to block B: aA < aB
Q5: Explain. F=ma

Q6: Compare the magnitude of $T_{\text{on A by 1}}$ to $T_{\text{on 1 by A}}$. T(on A by 1) = T(on 1 by A)
Q7: Explain. The same force is being applied to each block.

Q8: Compare the magnitude of $T_{\text{on A by 2}}$ to $T_{\text{on B by 2}}$. T(on A by 2) = T(on B by 2)
Q9: Explain. Newton's thrid law

Q10: Compare the magnitude of $T_{\text{on A by 1}}$ to $T_{\text{on B by 2}}$. T(on A by 1) > T(on B by 2)
Q11: Explain. Stirng one is pulling both blocks while string two is just pulling block 2.

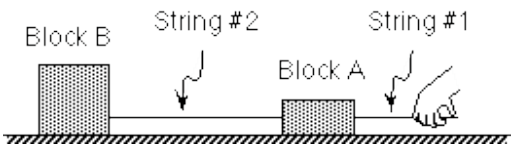
Consider the same situation as above. (Recall that there is no friction between the table and blocks.)

Q12. Determine the tension in string 2 if the hand exerts a force of 12 N, the mass of block A is 2 kg, and the mass of block B is 4 kg. (Only include the value in your answer; do not include units in your answer.) 3N

Q13. Explain. Tension would be the force divided by the mass of block b

Student#: **NAME**

Two blocks of unequal mass ($m_A < m_B$) are connected by a string (string 2). The blocks are placed on a frictionless table and pulled by another string (string 1) that is attached to block A such that both blocks move together faster and faster. Assume both strings are inextensible and massless.



Q4: Compare the magnitude of the acceleration of block A to block B: aA = aB

Q5: Explain. F=maThe blocks which are being pulled by different forces have different mass, that's why they have the same acceleration

Q6: Compare the magnitude of $T_{\text{on A by 1}}$ to $T_{\text{on 1 by A}}$. T(on A by 1) = T(on 1 by A)

Q7: Explain. it's action reaction pair forces

Q8: Compare the magnitude of $T_{\text{on A by 2}}$ to $T_{\text{on B by 2}}$. T(on A by 2) = T(on B by 2)

Q9: Explain. They are action reaction pair forces

Q10: Compare the magnitude of $T_{\text{on A by 1}}$ to $T_{\text{on B by 2}}$. T(on A by 1) < T(on B by 2)

Q11: Explain. Because block A has less mass than block B

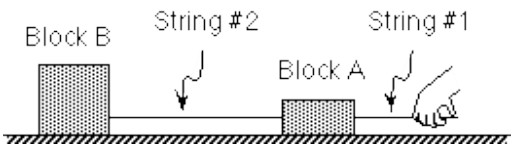
Consider the same situation as above. (Recall that there is no friction between the table and blocks.)

Q12. Determine the tension in string 2 if the hand exerts a force of 12 N, the mass of block A is 2 kg, and the mass of block B is 4 kg. (Only include the value in your answer; do not include units in your answer.) 8

Q13. Explain. f=mastring 2 must exert twice as strong force as string 1 because the mass of block A is 1/2 mass of block B

Student#: **NAME**

Two blocks of unequal mass ($m_A < m_B$) are connected by a string (string 2). The blocks are placed on a frictionless table and pulled by another string (string 1) that is attached to block A such that both blocks move together faster and faster. Assume both strings are inextensible and massless.



Q4: Compare the magnitude of the acceleration of block A to block B: aA = aB

Q5: Explain. Since the blocks are connected they would be moving with the same acceleration.

Q6: Compare the magnitude of $T_{\text{on A by 1}}$ to $T_{\text{on 1 by A}}$. T(on A by 1) = T(on 1 by A)

Q7: Explain. Newton's third law

Q8: Compare the magnitude of $T_{\text{on A by 2}}$ to $T_{\text{on B by 2}}$. T(on A by 2) = T(on B by 2)

Q9: Explain. Newton's third law

Q10: Compare the magnitude of $T_{\text{on A by 1}}$ to $T_{\text{on B by 2}}$. T(on A by 1) > T(on B by 2)

Q11: Explain. The force on A from string 1 = (Mass(a) + Mass(b))*a while on B from string 2 = (Mass(b))*a

---

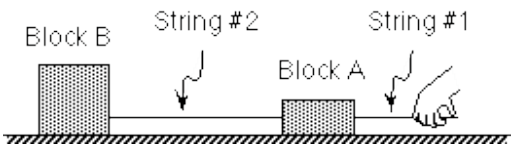
Consider the same situation as above. (Recall that there is no friction between the table and blocks.)

Q12. Determine the tension in string 2 if the hand exerts a force of 12 N, the mass of block A is 2 kg, and the mass of block B is 4 kg. (Only include the value in your answer; do not include units in your answer.) 8

Q13. Explain. First I found the acceleration of the system using F=ma where m = the mass of the two blocks combined. Using the fact that the acceleration would be the same for both blocks I found the Tension by taking the mass of block B * the acceleration

Student#: **NAME**

Two blocks of unequal mass ($m_A < m_B$) are connected by a string (string 2). The blocks are placed on a frictionless table and pulled by another string (string 1) that is attached to block A such that both blocks move together faster and faster. Assume both strings are inextensible and massless.



Q4: Compare the magnitude of the acceleration of block A to block B: aA = aB
Q5: Explain. They are a single system, so they have the same acceleration.

Q6: Compare the magnitude of $T_{\text{on A by 1}}$ to $T_{\text{on 1 by A}}$. T(on A by 1) > T(on 1 by A)
Q7: Explain. This is greater because it moves the whole system.

Q8: Compare the magnitude of $T_{\text{on A by 2}}$ to $T_{\text{on B by 2}}$. T(on A by 2) = T(on B by 2)
Q9: Explain. Newton's third law

Q10: Compare the magnitude of $T_{\text{on A by 1}}$ to $T_{\text{on B by 2}}$. T(on A by 1) < T(on B by 2)
Q11: Explain. That string only pulls 1 block while the other pulls both blocks.

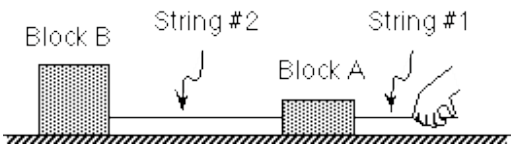
Consider the same situation as above. (Recall that there is no friction between the table and blocks.)

Q12. Determine the tension in string 2 if the hand exerts a force of 12 N, the mass of block A is 2 kg, and the mass of block B is 4 kg. (Only include the value in your answer; do not include units in your answer.) 4 N

Q13. Explain. Newton's third law

Student#: **NAME**

Two blocks of unequal mass ($m_A < m_B$) are connected by a string (string 2). The blocks are placed on a frictionless table and pulled by another string (string 1) that is attached to block A such that both blocks move together faster and faster. Assume both strings are inextensible and massless.



Q4: Compare the magnitude of the acceleration of block A to block B: aA = aB
Q5: Explain. It is equal because both A and B are moving together

Q6: Compare the magnitude of $T_{\text{on A by 1}}$ to $T_{\text{on 1 by A}}$. T(on A by 1) > T(on 1 by A)
Q7: Explain. Since A is moving the block has to exert less force than 1

Q8: Compare the magnitude of $T_{\text{on A by 2}}$ to $T_{\text{on B by 2}}$. T(on A by 2) = T(on B by 2)
Q9: Explain. The blocks are moving together so the forces are equal

Q10: Compare the magnitude of $T_{\text{on A by 1}}$ to $T_{\text{on B by 2}}$. T(on A by 1) < T(on B by 2)
Q11: Explain. B weighs more so it exerts more force on A

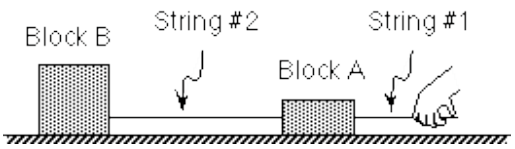
Consider the same situation as above. (Recall that there is no friction between the table and blocks.)

Q12. Determine the tension in string 2 if the hand exerts a force of 12 N, the mass of block A is 2 kg, and the mass of block B is 4 kg. (Only include the value in your answer; do not include units in your answer.) 12

Q13. Explain. The force that the hand pulls with is the same force that string 2 feels due to there being no friction

Student#: **NAME**

Two blocks of unequal mass ($m_A < m_B$) are connected by a string (string 2). The blocks are placed on a frictionless table and pulled by another string (string 1) that is attached to block A such that both blocks move together faster and faster. Assume both strings are inextensible and massless.



Q4: Compare the magnitude of the acceleration of block A to block B: aA > aB
Q5: Explain. a=delta v/ delta t, same distance, less time

Q6: Compare the magnitude of $T_{\text{on A by 1}}$ to $T_{\text{on 1 by A}}$. T(on A by 1) > T(on 1 by A)
Q7: Explain. More mass

Q8: Compare the magnitude of $T_{\text{on A by 2}}$ to $T_{\text{on B by 2}}$. T(on A by 2) < T(on B by 2)
Q9: Explain. they're moving and accelerating

Q10: Compare the magnitude of $T_{\text{on A by 1}}$ to $T_{\text{on B by 2}}$. T(on A by 1) > T(on B by 2)
Q11: Explain. More mass to pull

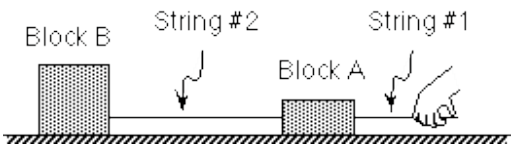
Consider the same situation as above. (Recall that there is no friction between the table and blocks.)

Q12. Determine the tension in string 2 if the hand exerts a force of 12 N, the mass of block A is 2 kg, and the mass of block B is 4 kg. (Only include the value in your answer; do not include units in your answer.) 24

Q13. Explain. F=ma12=2*a a=6 m/s^2F=4*6F=24

Student#: **NAME**

Two blocks of unequal mass ($m_A < m_B$) are connected by a string (string 2). The blocks are placed on a frictionless table and pulled by another string (string 1) that is attached to block A such that both blocks move together faster and faster. Assume both strings are inextensible and massless.



Q4: Compare the magnitude of the acceleration of block A to block B: aA > aB
Q5: Explain. Listening to lecture, I determined that mass A was greater.

Q6: Compare the magnitude of $T_{\text{on A by 1}}$ to $T_{\text{on 1 by A}}$. T(on A by 1) = T(on 1 by A)
Q7: Explain. Newton's thrid law, action- reaction pairs.

Q8: Compare the magnitude of $T_{\text{on A by 2}}$ to $T_{\text{on B by 2}}$. T(on A by 2) = T(on B by 2)
Q9: Explain. Newton's third law, action reaction pairs.

Q10: Compare the magnitude of $T_{\text{on A by 1}}$ to $T_{\text{on B by 2}}$. T(on A by 1) > T(on B by 2)
Q11: Explain. more force on mass A since it also pulls mass B.

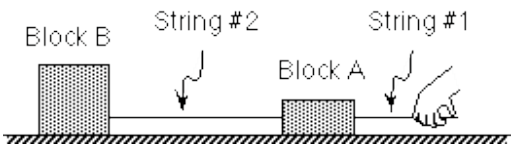
Consider the same situation as above. (Recall that there is no friction between the table and blocks.)

Q12. Determine the tension in string 2 if the hand exerts a force of 12 N, the mass of block A is 2 kg, and the mass of block B is 4 kg. (Only include the value in your answer; do not include units in your answer.) 243.45

Q13. Explain. tension force equations.

Student#: **NAME**

Two blocks of unequal mass ($m_A < m_B$) are connected by a string (string 2). The blocks are placed on a frictionless table and pulled by another string (string 1) that is attached to block A such that both blocks move together faster and faster. Assume both strings are inextensible and massless.



Q4: Compare the magnitude of the acceleration of block A to block B: aA = aB

Q5: Explain. They have the same acceleration because the two masses move together as one, and have the same force applied to them, therefore have the same acceleration.

Q6: Compare the magnitude of $T_{\text{on A by 1}}$ to $T_{\text{on 1 by A}}$. T(on A by 1) = T(on 1 by A)

Q7: Explain. Same due to Newton's Third Law.

Q8: Compare the magnitude of $T_{\text{on A by 2}}$ to $T_{\text{on B by 2}}$. T(on A by 2) = T(on B by 2)

Q9: Explain. Has to be equal or the strings would break. Newton's Third Law.

Q10: Compare the magnitude of $T_{\text{on A by 1}}$ to $T_{\text{on B by 2}}$. T(on A by 1) > T(on B by 2)

Q11: Explain. Greater because of Newton's Second Law, Fnet = ma

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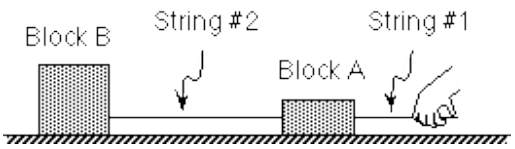
Consider the same situation as above. (Recall that there is no friction between the table and blocks.)

Q12. Determine the tension in string 2 if the hand exerts a force of 12 N, the mass of block A is 2 kg, and the mass of block B is 4 kg. (Only include the value in your answer; do not include units in your answer.) 8 N

Q13. Explain. Find total accleration of system using Fnet=ma, then break up the system around block B and solve for T using Fnet=ma where Fnet = T in string 2

Student#: **NAME**

Two blocks of unequal mass ($m_A < m_B$) are connected by a string (string 2). The blocks are placed on a frictionless table and pulled by another string (string 1) that is attached to block A such that both blocks move together faster and faster. Assume both strings are inextensible and massless.



Q4: Compare the magnitude of the acceleration of block A to block B: aA = aB

Q5: Explain. sum the masses to find the tension, then the accels will be the same

Q6: Compare the magnitude of $T_{\text{on A by 1}}$ to $T_{\text{on 1 by A}}$. T(on A by 1) = T(on 1 by A)

Q7: Explain. the forces will not differ

Q8: Compare the magnitude of $T_{\text{on A by 2}}$ to $T_{\text{on B by 2}}$. T(on A by 2) = T(on B by 2)

Q9: Explain. string would break if they were not equal

Q10: Compare the magnitude of $T_{\text{on A by 1}}$ to $T_{\text{on B by 2}}$. T(on A by 1) > T(on B by 2)

Q11: Explain. because it is pulling both blocks

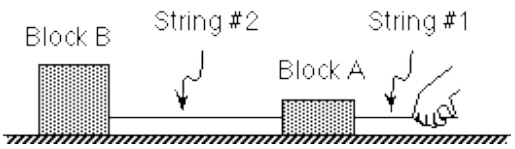
Consider the same situation as above. (Recall that there is no friction between the table and blocks.)

Q12. Determine the tension in string 2 if the hand exerts a force of 12 N, the mass of block A is 2 kg, and the mass of block B is 4 kg. (Only include the value in your answer; do not include units in your answer.) 8

Q13. Explain. sum forces and get accel, then use the block b in t=ma to get the tension

Student#: **NAME**

Two blocks of unequal mass ($m_A < m_B$) are connected by a string (string 2). The blocks are placed on a frictionless table and pulled by another string (string 1) that is attached to block A such that both blocks move together faster and faster. Assume both strings are inextensible and massless.



Q4: Compare the magnitude of the acceleration of block A to block B: aA = aB
Q5: Explain. They are the same sytem so they have the same acceleration.

Q6: Compare the magnitude of $T_{\text{on A by 1}}$ to $T_{\text{on 1 by A}}$. T(on A by 1) = T(on 1 by A)
Q7: Explain. They are equal because they are pairs.

Q8: Compare the magnitude of $T_{\text{on A by 2}}$ to $T_{\text{on B by 2}}$. T(on A by 2) = T(on B by 2)
Q9: Explain. No friction.

Q10: Compare the magnitude of $T_{\text{on A by 1}}$ to $T_{\text{on B by 2}}$. T(on A by 1) = T(on B by 2)
Q11: Explain. No friction.

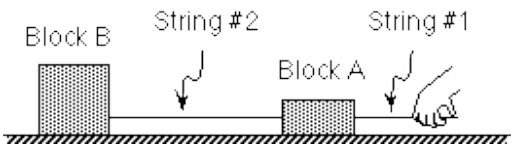
Consider the same situation as above. (Recall that there is no friction between the table and blocks.)

Q12. Determine the tension in string 2 if the hand exerts a force of 12 N, the mass of block A is 2 kg, and the mass of block B is 4 kg. (Only include the value in your answer; do not include units in your answer.) 12

Q13. Explain. There is no friction.

Student#: **NAME**

Two blocks of unequal mass ($m_A < m_B$) are connected by a string (string 2). The blocks are placed on a frictionless table and pulled by another string (string 1) that is attached to block A such that both blocks move together faster and faster. Assume both strings are inextensible and massless.



Q4: Compare the magnitude of the acceleration of block A to block B: aA = aB

Q5: Explain. Because both A and B are part of the system, and move together. Therefore they have equal acceleration.

Q6: Compare the magnitude of $T_{\text{on A by 1}}$ to $T_{\text{on 1 by A}}$. T(on A by 1) = T(on 1 by A)

Q7: Explain. The are third law pairs, sot hey are equal.

Q8: Compare the magnitude of $T_{\text{on A by 2}}$ to $T_{\text{on B by 2}}$. T(on A by 2) = T(on B by 2)

Q9: Explain. Because the tension can be thought of as the force between the two blocks if the blocks were side by side. As a result the Force is equal.

Q10: Compare the magnitude of $T_{\text{on A by 1}}$ to $T_{\text{on B by 2}}$. T(on A by 1) > T(on B by 2)

Q11: Explain. Because Tension on A by 1 pulls both blocks, so it is greater.

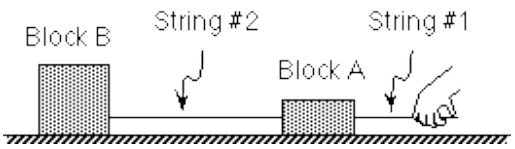
Consider the same situation as above. (Recall that there is no friction between the table and blocks.)

Q12. Determine the tension in string 2 if the hand exerts a force of 12 N, the mass of block A is 2 kg, and the mass of block B is 4 kg. (Only include the value in your answer; do not include units in your answer.) 8

Q13. Explain. I found the acceleration of the system. Then I multiplied the acceleration by the mass of block B to find the Tension. This is done because String 2 is only pulling block B.

Student#: **NAME**

Two blocks of unequal mass ($m_A < m_B$) are connected by a string (string 2). The blocks are placed on a frictionless table and pulled by another string (string 1) that is attached to block A such that both blocks move together faster and faster. Assume both strings are inextensible and massless.



Q4: Compare the magnitude of the acceleration of block A to block B: aA = aB
Q5: Explain. The blocks move together, with the same acceleration.

Q6: Compare the magnitude of $T_{\text{on A by 1}}$ to $T_{\text{on 1 by A}}$. T(on A by 1) = T(on 1 by A)
Q7: Explain. Newton's 3rd law pair.

Q8: Compare the magnitude of $T_{\text{on A by 2}}$ to $T_{\text{on B by 2}}$. T(on A by 2) = T(on B by 2)
Q9: Explain. The same string has the same tension throughout.

Q10: Compare the magnitude of $T_{\text{on A by 1}}$ to $T_{\text{on B by 2}}$. T(on A by 1) > T(on B by 2)
Q11: Explain. String 1 has to pull the mass of A and B, while 2 only has to pull B.

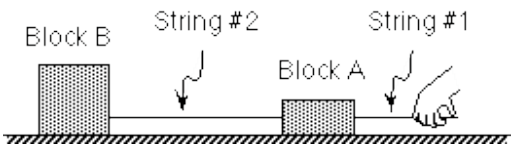
Consider the same situation as above. (Recall that there is no friction between the table and blocks.)

Q12. Determine the tension in string 2 if the hand exerts a force of 12 N, the mass of block A is 2 kg, and the mass of block B is 4 kg. (Only include the value in your answer; do not include units in your answer.) 8

Q13. Explain. F = m * afor the system and for block B. Find a with force of hand and total mass of two blocks. a is the same for the system as block B. so T2 = Mb * a

Student#: **NAME**

Two blocks of unequal mass ($m_A < m_B$) are connected by a string (string 2). The blocks are placed on a frictionless table and pulled by another string (string 1) that is attached to block A such that both blocks move together faster and faster. Assume both strings are inextensible and massless.



Q4: Compare the magnitude of the acceleration of block A to block B: aA = aB

Q5: Explain. Both blocks are moving at the same velocity and speeding up at the same rate.

Q6: Compare the magnitude of $T_{\text{on A by 1}}$ to $T_{\text{on 1 by A}}$. T(on A by 1) = T(on 1 by A)

Q7: Explain. they are an action-reaction (third law) pair; T1A = TA1; they are equal and opposite

Q8: Compare the magnitude of $T_{\text{on A by 2}}$ to $T_{\text{on B by 2}}$. T(on A by 2) < T(on B by 2)

Q9: Explain. The net force in the x direction for each is only the tension force. The accelerations are equal and the mass of A is less than the mass of B, so by Newton's 2nd law the force of A is less than the force of B.

Q10: Compare the magnitude of $T_{\text{on A by 1}}$ to $T_{\text{on B by 2}}$. T(on A by 1) = T(on B by 2)

Q11: Explain. I don't have a clue.

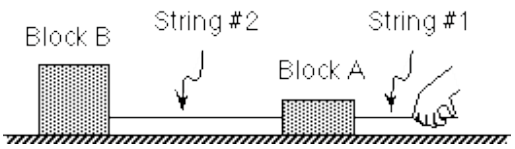
Consider the same situation as above. (Recall that there is no friction between the table and blocks.)

Q12. Determine the tension in string 2 if the hand exerts a force of 12 N, the mass of block A is 2 kg, and the mass of block B is 4 kg. (Only include the value in your answer; do not include units in your answer.) ?????

Q13. Explain. I don't know.

Student#: **NAME**

Two blocks of unequal mass ($m_A < m_B$) are connected by a string (string 2). The blocks are placed on a frictionless table and pulled by another string (string 1) that is attached to block A such that both blocks move together faster and faster. Assume both strings are inextensible and massless.



Q4: Compare the magnitude of the acceleration of block A to block B: aA = aB
Q5: Explain. it's a of the system

Q6: Compare the magnitude of $T_{\text{on A by 1}}$ to $T_{\text{on 1 by A}}$. T(on A by 1) = T(on 1 by A)
Q7: Explain. action reaction force

Q8: Compare the magnitude of $T_{\text{on A by 2}}$ to $T_{\text{on B by 2}}$. T(on A by 2) = T(on B by 2)
Q9: Explain. it's the same string

Q10: Compare the magnitude of $T_{\text{on A by 1}}$ to $T_{\text{on B by 2}}$. T(on A by 1) > T(on B by 2)
Q11: Explain. t1 pulls everything

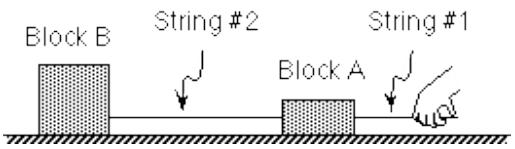
Consider the same situation as above. (Recall that there is no friction between the table and blocks.)

Q12. Determine the tension in string 2 if the hand exerts a force of 12 N, the mass of block A is 2 kg, and the mass of block B is 4 kg. (Only include the value in your answer; do not include units in your answer.) 8

Q13. Explain. the reasoning??? i answer in value not in reason!

Student#: **NAME**

Two blocks of unequal mass ($m_A < m_B$) are connected by a string (string 2). The blocks are placed on a frictionless table and pulled by another string (string 1) that is attached to block A such that both blocks move together faster and faster. Assume both strings are inextensible and massless.



Q4: Compare the magnitude of the acceleration of block A to block B: aA = aB
Q5: Explain. both moving at the same speed.

Q6: Compare the magnitude of $T_{\text{on A by 1}}$ to $T_{\text{on 1 by A}}$. T(on A by 1) = T(on 1 by A)
Q7: Explain. newtons 3rd law pair.

Q8: Compare the magnitude of $T_{\text{on A by 2}}$ to $T_{\text{on B by 2}}$. T(on A by 2) < T(on B by 2)
Q9: Explain. because they are moving in the direction that it is pulling.

Q10: Compare the magnitude of $T_{\text{on A by 1}}$ to $T_{\text{on B by 2}}$. T(on A by 1) < T(on B by 2)
Q11: Explain. B has a greater mass.

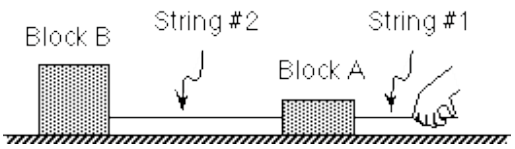
Consider the same situation as above. (Recall that there is no friction between the table and blocks.)

Q12. Determine the tension in string 2 if the hand exerts a force of 12 N, the mass of block A is 2 kg, and the mass of block B is 4 kg. (Only include the value in your answer; do not include units in your answer.) 12

Q13. Explain. f=ma, have to figure out acceleration and then use the mass of block a.

Student#: **NAME**

Two blocks of unequal mass ($m_A < m_B$) are connected by a string (string 2). The blocks are placed on a frictionless table and pulled by another string (string 1) that is attached to block A such that both blocks move together faster and faster. Assume both strings are inextensible and massless.



Q4: Compare the magnitude of the acceleration of block A to block B: aA = aB

Q5: Explain. The blocks are both connected by the same string so their accelerations would be the same.

Q6: Compare the magnitude of $T_{\text{on A by 1}}$ to $T_{\text{on 1 by A}}$. T(on A by 1) = T(on 1 by A)

Q7: Explain. Newton's 3rd law. These are action reaction pairs

Q8: Compare the magnitude of $T_{\text{on A by 2}}$ to $T_{\text{on B by 2}}$. T(on A by 2) = T(on B by 2)

Q9: Explain. They are action reaction pairs by Newton's 3rd law

Q10: Compare the magnitude of $T_{\text{on A by 1}}$ to $T_{\text{on B by 2}}$. T(on A by 1) > T(on B by 2)

Q11: Explain. The first string is pulling both blocks while the second string is just pulling the last block so therefore the first string has a larger magnitude

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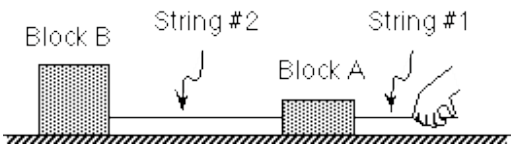
Consider the same situation as above. (Recall that there is no friction between the table and blocks.)

Q12. Determine the tension in string 2 if the hand exerts a force of 12 N, the mass of block A is 2 kg, and the mass of block B is 4 kg. (Only include the value in your answer; do not include units in your answer.) 19.6

Q13. Explain. It would be the tension caused by block B- tenision caused by block A. The magnitude would be 19.6 then (39.2-19.6)

Student#: **NAME**

Two blocks of unequal mass ($m_A < m_B$) are connected by a string (string 2). The blocks are placed on a frictionless table and pulled by another string (string 1) that is attached to block A such that both blocks move together faster and faster. Assume both strings are inextensible and massless.



Q4: Compare the magnitude of the acceleration of block A to block B: aA = aB
Q5: Explain. they are both accelerating with the same pull

Q6: Compare the magnitude of $T_{\text{on A by 1}}$ to $T_{\text{on 1 by A}}$. T(on A by 1) = T(on 1 by A)
Q7: Explain. newtons 3rd law

Q8: Compare the magnitude of $T_{\text{on A by 2}}$ to $T_{\text{on B by 2}}$. T(on A by 2) > T(on B by 2)
Q9: Explain. pulling both block

Q10: Compare the magnitude of $T_{\text{on A by 1}}$ to $T_{\text{on B by 2}}$. T(on A by 1) = T(on B by 2)
Q11: Explain. bigger block

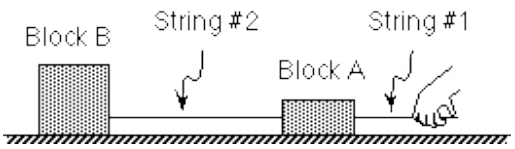
Consider the same situation as above. (Recall that there is no friction between the table and blocks.)

Q12. Determine the tension in string 2 if the hand exerts a force of 12 N, the mass of block A is 2 kg, and the mass of block B is 4 kg. (Only include the value in your answer; do not include units in your answer.) 8

Q13. Explain. found acceleration and multiplied by the mas =s of B

Student#: **NAME**

Two blocks of unequal mass ($m_A < m_B$) are connected by a string (string 2). The blocks are placed on a frictionless table and pulled by another string (string 1) that is attached to block A such that both blocks move together faster and faster. Assume both strings are inextensible and massless.



Q4: Compare the magnitude of the acceleration of block A to block B: aA = aB

Q5: Explain. both blocks move with the same speed because they are pulled with the same force

Q6: Compare the magnitude of $T_{\text{on A by 1}}$ to $T_{\text{on 1 by A}}$. T(on A by 1) = T(on 1 by A)

Q7: Explain. These are action-reaction pairs

Q8: Compare the magnitude of $T_{\text{on A by 2}}$ to $T_{\text{on B by 2}}$. T(on A by 2) < T(on B by 2)

Q9: Explain. Block B has a greater mass so since they both have the same acceleration then B has a greater force due to F=ma.

Q10: Compare the magnitude of $T_{\text{on A by 1}}$ to $T_{\text{on B by 2}}$. T(on A by 1) < T(on B by 2)

Q11: Explain. Block A has a smaller mass so since they both have the same acceleration then A has a smaller force due to F=ma.

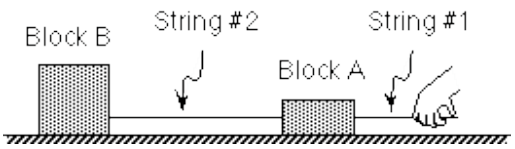
Consider the same situation as above. (Recall that there is no friction between the table and blocks.)

Q12. Determine the tension in string 2 if the hand exerts a force of 12 N, the mass of block A is 2 kg, and the mass of block B is 4 kg. (Only include the value in your answer; do not include units in your answer.) 24

Q13. Explain. They both have the same acceleration of 6 m/s^2 so 4 *6=24 Newtons by Newton's third law.

Student#: **NAME**

Two blocks of unequal mass ($m_A < m_B$) are connected by a string (string 2). The blocks are placed on a frictionless table and pulled by another string (string 1) that is attached to block A such that both blocks move together faster and faster. Assume both strings are inextensible and massless.



Q4: Compare the magnitude of the acceleration of block A to block B: aA = aB
Q5: Explain. if they move together, the acceleration is the same.

Q6: Compare the magnitude of $T_{\text{on A by 1}}$ to $T_{\text{on 1 by A}}$. T(on A by 1) > T(on 1 by A)
Q7: Explain. it is moving so that force is greater

Q8: Compare the magnitude of $T_{\text{on A by 2}}$ to $T_{\text{on B by 2}}$. T(on A by 2) = T(on B by 2)
Q9: Explain. same as 9

Q10: Compare the magnitude of $T_{\text{on A by 1}}$ to $T_{\text{on B by 2}}$. T(on A by 1) < T(on B by 2)
Q11: Explain. block b weighs more

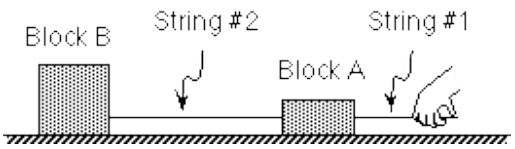
Consider the same situation as above. (Recall that there is no friction between the table and blocks.)

Q12. Determine the tension in string 2 if the hand exerts a force of 12 N, the mass of block A is 2 kg, and the mass of block B is 4 kg. (Only include the value in your answer; do not include units in your answer.) 10

Q13. Explain. it has to be less than 12 because there would not be enough force to move it

Student#: **NAME**

Two blocks of unequal mass ($m_A < m_B$) are connected by a string (string 2). The blocks are placed on a frictionless table and pulled by another string (string 1) that is attached to block A such that both blocks move together faster and faster. Assume both strings are inextensible and massless.



Q4: Compare the magnitude of the acceleration of block A to block B: aA > aB
Q5: Explain. The friction force is more for block A

Q6: Compare the magnitude of $T_{\text{on A by 1}}$ to $T_{\text{on 1 by A}}$. T(on A by 1) = T(on 1 by A)
Q7: Explain. Newtons 3rd law

Q8: Compare the magnitude of $T_{\text{on A by 2}}$ to $T_{\text{on B by 2}}$. T(on A by 2) < T(on B by 2)
Q9: Explain. Newtons 2nd law

Q10: Compare the magnitude of $T_{\text{on A by 1}}$ to $T_{\text{on B by 2}}$. T(on A by 1) > T(on B by 2)
Q11: Explain. Newtons 3rd law

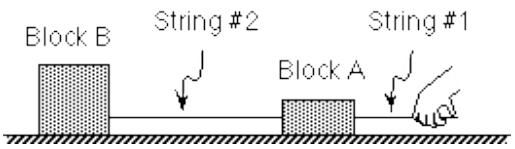
Consider the same situation as above. (Recall that there is no friction between the table and blocks.)

Q12. Determine the tension in string 2 if the hand exerts a force of 12 N, the mass of block A is 2 kg, and the mass of block B is 4 kg. (Only include the value in your answer; do not include units in your answer.) 15

Q13. Explain.

Student#: **NAME**

Two blocks of unequal mass ($m_A < m_B$) are connected by a string (string 2). The blocks are placed on a frictionless table and pulled by another string (string 1) that is attached to block A such that both blocks move together faster and faster. Assume both strings are inextensible and massless.



Q4: Compare the magnitude of the acceleration of block A to block B: aA = aB
Q5: Explain. string 2 is back farther...this means that they are equal

Q6: Compare the magnitude of $T_{\text{on A by 1}}$ to $T_{\text{on 1 by A}}$. T(on A by 1) = T(on 1 by A)
Q7: Explain. like the last one...they are still equal

Q8: Compare the magnitude of $T_{\text{on A by 2}}$ to $T_{\text{on B by 2}}$. T(on A by 2) = T(on B by 2)
Q9: Explain. the total force is still equal

Q10: Compare the magnitude of $T_{\text{on A by 1}}$ to $T_{\text{on B by 2}}$. T(on A by 1) = T(on B by 2)
Q11: Explain. the forces are equal all througout

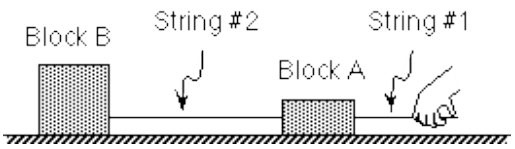
Consider the same situation as above. (Recall that there is no friction between the table and blocks.)

Q12. Determine the tension in string 2 if the hand exerts a force of 12 N, the mass of block A is 2 kg, and the mass of block B is 4 kg. (Only include the value in your answer; do not include units in your answer.) 12

Q13. Explain. equal...they are equal all the way through...i explained already.

Student#: **NAME**

Two blocks of unequal mass ($m_A < m_B$) are connected by a string (string 2). The blocks are placed on a frictionless table and pulled by another string (string 1) that is attached to block A such that both blocks move together faster and faster. Assume both strings are inextensible and massless.



Q4: Compare the magnitude of the acceleration of block A to block B: aA = aB
Q5: Explain. this is because,they are connected by the same string!

Q6: Compare the magnitude of $T_{\text{on A by 1}}$ to $T_{\text{on 1 by A}}$. T(on A by 1) < T(on 1 by A)
Q7: Explain. Because t1 is greater than t

Q8: Compare the magnitude of $T_{\text{on A by 2}}$ to $T_{\text{on B by 2}}$. T(on A by 2) > T(on B by 2)
Q9: Explain. Same reason as above

Q10: Compare the magnitude of $T_{\text{on A by 1}}$ to $T_{\text{on B by 2}}$. T(on A by 1) = T(on B by 2)
Q11: Explain. same reason

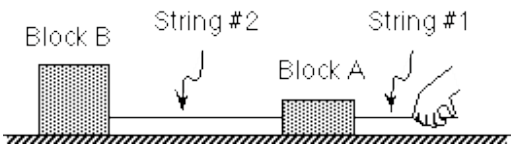
Consider the same situation as above. (Recall that there is no friction between the table and blocks.)

Q12. Determine the tension in string 2 if the hand exerts a force of 12 N, the mass of block A is 2 kg, and the mass of block B is 4 kg. (Only include the value in your answer; do not include units in your answer.) 12

Q13. Explain. newtons thrid law

Student#: **NAME**

Two blocks of unequal mass ($m_A < m_B$) are connected by a string (string 2). The blocks are placed on a frictionless table and pulled by another string (string 1) that is attached to block A such that both blocks move together faster and faster. Assume both strings are inextensible and massless.



Q4: Compare the magnitude of the acceleration of block A to block B: aA = aB

Q5: Explain. The blocks are connected so they have to be accelerating at the same rate.

Q6: Compare the magnitude of $T_{\text{on A by 1}}$ to $T_{\text{on 1 by A}}$. T(on A by 1) = T(on 1 by A)

Q7: Explain. This is true because of newton's third law. That is the action-reaction pair for the force.

Q8: Compare the magnitude of $T_{\text{on A by 2}}$ to $T_{\text{on B by 2}}$. T(on A by 2) < T(on B by 2)

Q9: Explain. Block B has a greater mass so it exerts a greater force.

Q10: Compare the magnitude of $T_{\text{on A by 1}}$ to $T_{\text{on B by 2}}$. T(on A by 1) < T(on B by 2)

Q11: Explain. This is because the mass of B is greater and it produces a bigger force.

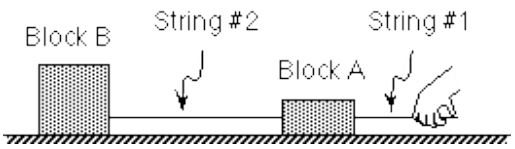
Consider the same situation as above. (Recall that there is no friction between the table and blocks.)

Q12. Determine the tension in string 2 if the hand exerts a force of 12 N, the mass of block A is 2 kg, and the mass of block B is 4 kg. (Only include the value in your answer; do not include units in your answer.) 51.2

Q13. Explain. The tension should be a combined force with the normal of block B. By adding these two forces i got that answer.

Student#: **NAME**

Two blocks of unequal mass ($m_A < m_B$) are connected by a string (string 2). The blocks are placed on a frictionless table and pulled by another string (string 1) that is attached to block A such that both blocks move together faster and faster. Assume both strings are inextensible and massless.



Q4: Compare the magnitude of the acceleration of block A to block B: aA < aB
Q5: Explain. Block B needs more acceleration to move it as fast as block A

Q6: Compare the magnitude of $T_{\text{on A by 1}}$ to $T_{\text{on 1 by A}}$. T(on A by 1) = T(on 1 by A)
Q7: Explain. Newton's Third Law, it's a third law pair

Q8: Compare the magnitude of $T_{\text{on A by 2}}$ to $T_{\text{on B by 2}}$. T(on A by 2) = T(on B by 2)
Q9: Explain. The tension force is going to be the same amount on each block

Q10: Compare the magnitude of $T_{\text{on A by 1}}$ to $T_{\text{on B by 2}}$. T(on A by 1) > T(on B by 2)
Q11: Explain. String 1 has to pull both blocks, while string 2 only has to pull block B.

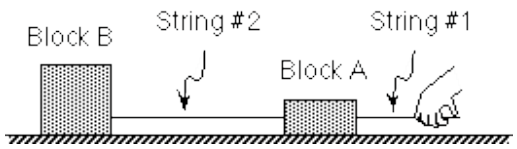
Consider the same situation as above. (Recall that there is no friction between the table and blocks.)

Q12. Determine the tension in string 2 if the hand exerts a force of 12 N, the mass of block A is 2 kg, and the mass of block B is 4 kg. (Only include the value in your answer; do not include units in your answer.) 70.8

Q13. Explain. F-T=ma Just solve the equation in terms of T

Student#: **NAME**

Two blocks of unequal mass ($m_A < m_B$) are connected by a string (string 2). The blocks are placed on a frictionless table and pulled by another string (string 1) that is attached to block A such that both blocks move together faster and faster. Assume both strings are inextensible and massless.



Q4: Compare the magnitude of the acceleration of block A to block B: aA = aB

Q5: Explain. The same tension force is applied to both blocks, so the force is the same, and since they are of the same system the acceleration is also the same.

Q6: Compare the magnitude of $T_{\text{on A by 1}}$ to $T_{\text{on 1 by A}}$. T(on A by 1) = T(on 1 by A)

Q7: Explain. It is a third-law force pair, which means they are equal.

Q8: Compare the magnitude of $T_{\text{on A by 2}}$ to $T_{\text{on B by 2}}$. T(on A by 2) < T(on B by 2)

Q9: Explain. B has a greater mass, and so has a greater force than block A.

Q10: Compare the magnitude of $T_{\text{on A by 1}}$ to $T_{\text{on B by 2}}$. T(on A by 1) > T(on B by 2)

Q11: Explain. The tension of A and 1 acts on both blocks, where as the tensions of B and 2 is a component of that force, so it must be less.

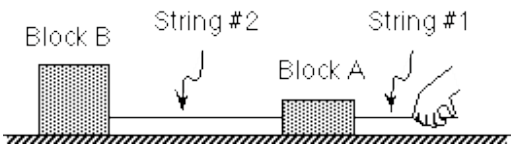
Consider the same situation as above. (Recall that there is no friction between the table and blocks.)

Q12. Determine the tension in string 2 if the hand exerts a force of 12 N, the mass of block A is 2 kg, and the mass of block B is 4 kg. (Only include the value in your answer; do not include units in your answer.) Eight newtons

Q13. Explain. First I divided the force of by the hand by the mass of the entire system (6 kg) to get the acceleration which is 2 m/s^2. Then I took that acceleration and times it by the mass of Block B (4 kg) to get 8 Newtons. The formula I used was F=ma

Student#: **NAME**

Two blocks of unequal mass ($m_A < m_B$) are connected by a string (string 2). The blocks are placed on a frictionless table and pulled by another string (string 1) that is attached to block A such that both blocks move together faster and faster. Assume both strings are inextensible and massless.



Q4: Compare the magnitude of the acceleration of block A to block B: aA = aB
Q5: Explain. They bwhave as a single particle.

Q6: Compare the magnitude of $T_{\text{on A by 1}}$ to $T_{\text{on 1 by A}}$. T(on A by 1) = T(on 1 by A)
Q7: Explain. They are third law pairs.

Q8: Compare the magnitude of $T_{\text{on A by 2}}$ to $T_{\text{on B by 2}}$. T(on A by 2) < T(on B by 2)
Q9: Explain. F = ma and the other block has a bigger m.

Q10: Compare the magnitude of $T_{\text{on A by 1}}$ to $T_{\text{on B by 2}}$. T(on A by 1) < T(on B by 2)
Q11: Explain. F = ma and since they both accelerate at the same rate, the only difference is m.

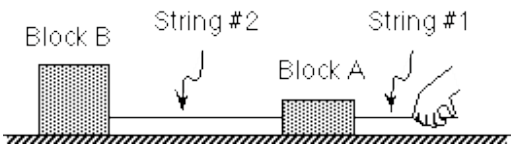
Consider the same situation as above. (Recall that there is no friction between the table and blocks.)

Q12. Determine the tension in string 2 if the hand exerts a force of 12 N, the mass of block A is 2 kg, and the mass of block B is 4 kg. (Only include the value in your answer; do not include units in your answer.) 10

Q13. Explain. I call it the guessing method, since I do not have a clue.

Student#: **NAME**

Two blocks of unequal mass ($m_A < m_B$) are connected by a string (string 2). The blocks are placed on a frictionless table and pulled by another string (string 1) that is attached to block A such that both blocks move together faster and faster. Assume both strings are inextensible and massless.



Q4: Compare the magnitude of the acceleration of block A to block B: aA = aB
Q5: Explain. they are in contact with each other through the tension of the string

Q6: Compare the magnitude of $T_{\text{on A by 1}}$ to $T_{\text{on 1 by A}}$. T(on A by 1) = T(on 1 by A)
Q7: Explain. they are third law action reaction pairs

Q8: Compare the magnitude of $T_{\text{on A by 2}}$ to $T_{\text{on B by 2}}$. T(on A by 2) < T(on B by 2)
Q9: Explain. the net force is in the positive x direction

Q10: Compare the magnitude of $T_{\text{on A by 1}}$ to $T_{\text{on B by 2}}$. T(on A by 1) > T(on B by 2)
Q11: Explain. its pulling more mass

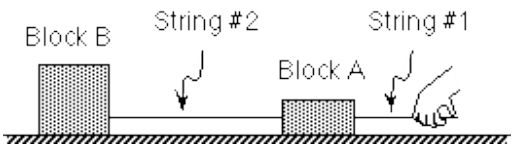
Consider the same situation as above. (Recall that there is no friction between the table and blocks.)

Q12. Determine the tension in string 2 if the hand exerts a force of 12 N, the mass of block A is 2 kg, and the mass of block B is 4 kg. (Only include the value in your answer; do not include units in your answer.) 39.2

Q13. Explain. 9.8 times the weight of block b because it is pulling block b

Student#: **NAME**

Two blocks of unequal mass ($m_A < m_B$) are connected by a string (string 2). The blocks are placed on a frictionless table and pulled by another string (string 1) that is attached to block A such that both blocks move together faster and faster. Assume both strings are inextensible and massless.



Q4: Compare the magnitude of the acceleration of block A to block B: aA = aB
Q5: Explain. F=ma so acceleration is the same since tied together

Q6: Compare the magnitude of $T_{\text{on A by 1}}$ to $T_{\text{on 1 by A}}$. T(on A by 1) = T(on 1 by A)
Q7: Explain. newton's third law

Q8: Compare the magnitude of $T_{\text{on A by 2}}$ to $T_{\text{on B by 2}}$. T(on A by 2) = T(on B by 2)
Q9: Explain. the tension is the same for the same string

Q10: Compare the magnitude of $T_{\text{on A by 1}}$ to $T_{\text{on B by 2}}$. T(on A by 1) < T(on B by 2)
Q11: Explain. more mass + the Tension for the first = the second Tension

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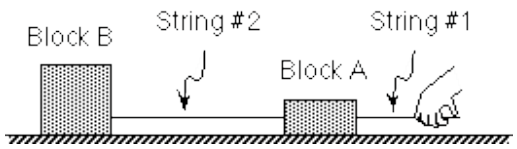
Consider the same situation as above. (Recall that there is no friction between the table and blocks.)

Q12. Determine the tension in string 2 if the hand exerts a force of 12 N, the mass of block A is 2 kg, and the mass of block B is 4 kg. (Only include the value in your answer; do not include units in your answer.) 70.8

Q13. Explain. mass of block A + mass of block B times gravitational acceleration + the Force in the direction

Student#: **NAME**

Two blocks of unequal mass ($m_A < m_B$) are connected by a string (string 2). The blocks are placed on a frictionless table and pulled by another string (string 1) that is attached to block A such that both blocks move together faster and faster. Assume both strings are inextensible and massless.



Q4: Compare the magnitude of the acceleration of block A to block B: aA = aB

Q5: Explain. they are part of the same system, so their acceleration must be the same

Q6: Compare the magnitude of $T_{\text{on A by 1}}$ to $T_{\text{on 1 by A}}$. T(on A by 1) = T(on 1 by A)

Q7: Explain. action reaction forces are equal in magnitude

Q8: Compare the magnitude of $T_{\text{on A by 2}}$ to $T_{\text{on B by 2}}$. 999

Q9: Explain.

Q10: Compare the magnitude of $T_{\text{on A by 1}}$ to $T_{\text{on B by 2}}$. T(on A by 1) < T(on B by 2)

Q11: Explain. B has the greater mass, so it would have the greater normal for string 2

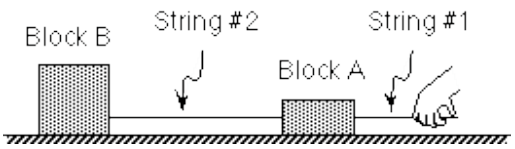
Consider the same situation as above. (Recall that there is no friction between the table and blocks.)

Q12. Determine the tension in string 2 if the hand exerts a force of 12 N, the mass of block A is 2 kg, and the mass of block B is 4 kg. (Only include the value in your answer; do not include units in your answer.) 8N

Q13. Explain. since the acceleration is the same, we can use f=ma with string1 and the mass of both block a and block b to find the acceleration, then using the same equation with the acceleration and the mass of block b, we can find the tension in string2

Student#: **NAME**

Two blocks of unequal mass ($m_A < m_B$) are connected by a string (string 2). The blocks are placed on a frictionless table and pulled by another string (string 1) that is attached to block A such that both blocks move together faster and faster. Assume both strings are inextensible and massless.



Q4: Compare the magnitude of the acceleration of block A to block B: aA = aB

Q5: Explain. The two blocks are acting as one so they are acclerating at the same rate.

Q6: Compare the magnitude of $T_{\text{on A by 1}}$ to $T_{\text{on 1 by A}}$. T(on A by 1) = T(on 1 by A)

Q7: Explain. They are an action reaction pair so the force exerted on either is always equal.

Q8: Compare the magnitude of $T_{\text{on A by 2}}$ to $T_{\text{on B by 2}}$. T(on A by 2) < T(on B by 2)

Q9: Explain. The magnitude would be less becuase b is more massive.

Q10: Compare the magnitude of $T_{\text{on A by 1}}$ to $T_{\text{on B by 2}}$. T(on A by 1) < T(on B by 2)

Q11: Explain. Block B is more massive so the force would be greater.

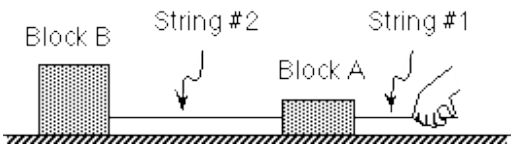
Consider the same situation as above. (Recall that there is no friction between the table and blocks.)

Q12. Determine the tension in string 2 if the hand exerts a force of 12 N, the mass of block A is 2 kg, and the mass of block B is 4 kg. (Only include the value in your answer; do not include units in your answer.) 24

Q13. Explain. 12 N divided by 2 kg gives you the accleration which is 6 m/s^2. Since the accleration is the same, the force on block 2 is the accleration times the mass which equals 24 N.

Student#: **NAME**

Two blocks of unequal mass ($m_A < m_B$) are connected by a string (string 2). The blocks are placed on a frictionless table and pulled by another string (string 1) that is attached to block A such that both blocks move together faster and faster. Assume both strings are inextensible and massless.



Q4: Compare the magnitude of the acceleration of block A to block B: aA = aB
Q5: Explain. THey move as one system

Q6: Compare the magnitude of $T_{\text{on A by 1}}$ to $T_{\text{on 1 by A}}$. T(on A by 1) = T(on 1 by A)
Q7: Explain. They are third order pairs

Q8: Compare the magnitude of $T_{\text{on A by 2}}$ to $T_{\text{on B by 2}}$. T(on A by 2) = T(on B by 2)
Q9: Explain. Third order pairs

Q10: Compare the magnitude of $T_{\text{on A by 1}}$ to $T_{\text{on B by 2}}$. T(on A by 1) > T(on B by 2)
Q11: Explain. THi is pulling both of the blocks

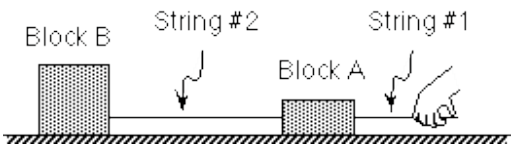
Consider the same situation as above. (Recall that there is no friction between the table and blocks.)

Q12. Determine the tension in string 2 if the hand exerts a force of 12 N, the mass of block A is 2 kg, and the mass of block B is 4 kg. (Only include the value in your answer; do not include units in your answer.) 8

Q13. Explain. F = m a and they all accelerate at same rate. Then us T=ma - net force

Student#: **NAME**

Two blocks of unequal mass ($m_A < m_B$) are connected by a string (string 2). The blocks are placed on a frictionless table and pulled by another string (string 1) that is attached to block A such that both blocks move together faster and faster. Assume both strings are inextensible and massless.



Q4: Compare the magnitude of the acceleration of block A to block B: aA = aB
Q5: Explain. their acting as one system

Q6: Compare the magnitude of $T_{\text{on A by 1}}$ to $T_{\text{on 1 by A}}$. T(on A by 1) = T(on 1 by A)
Q7: Explain. it has to be the same according to Newton's third law

Q8: Compare the magnitude of $T_{\text{on A by 2}}$ to $T_{\text{on B by 2}}$. T(on A by 2) > T(on B by 2)
Q9: Explain. a has a greater mass than b

Q10: Compare the magnitude of $T_{\text{on A by 1}}$ to $T_{\text{on B by 2}}$. T(on A by 1) < T(on B by 2)
Q11: Explain. two is acted on by two masses

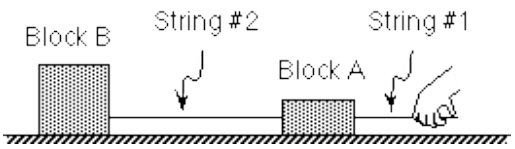
Consider the same situation as above. (Recall that there is no friction between the table and blocks.)

Q12. Determine the tension in string 2 if the hand exerts a force of 12 N, the mass of block A is 2 kg, and the mass of block B is 4 kg. (Only include the value in your answer; do not include units in your answer.) 39.2

Q13. Explain. determined using the mass of block b

Student#: **NAME**

Two blocks of unequal mass ($m_A < m_B$) are connected by a string (string 2). The blocks are placed on a frictionless table and pulled by another string (string 1) that is attached to block A such that both blocks move together faster and faster. Assume both strings are inextensible and massless.



Q4: Compare the magnitude of the acceleration of block A to block B: aA > aB

Q5: Explain. Since the mass of A is less the acceleration is greater according to the equation F=ma.

Q6: Compare the magnitude of $T_{\text{on A by 1}}$ to $T_{\text{on 1 by A}}$. T(on A by 1) = T(on 1 by A)

Q7: Explain. newtons third law.

Q8: Compare the magnitude of $T_{\text{on A by 2}}$ to $T_{\text{on B by 2}}$. T(on A by 2) = T(on B by 2)

Q9: Explain. Newtons third law

Q10: Compare the magnitude of $T_{\text{on A by 1}}$ to $T_{\text{on B by 2}}$. T(on A by 1) > T(on B by 2)

Q11: Explain. The mass pulled by 1 is greater than the mass pulled by 2.

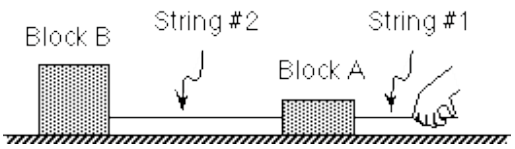
Consider the same situation as above. (Recall that there is no friction between the table and blocks.)

Q12. Determine the tension in string 2 if the hand exerts a force of 12 N, the mass of block A is 2 kg, and the mass of block B is 4 kg. (Only include the value in your answer; do not include units in your answer.) 4

Q13. Explain. It's only pulling block B.

Student#: **NAME**

Two blocks of unequal mass ($m_A < m_B$) are connected by a string (string 2). The blocks are placed on a frictionless table and pulled by another string (string 1) that is attached to block A such that both blocks move together faster and faster. Assume both strings are inextensible and massless.



Q4: Compare the magnitude of the acceleration of block A to block B: aA = aB
Q5: Explain. if string inflexible they must have the same acceleration

Q6: Compare the magnitude of $T_{\text{on A by 1}}$ to $T_{\text{on 1 by A}}$. T(on A by 1) = T(on 1 by A)
Q7: Explain. equal and opposite reaction

Q8: Compare the magnitude of $T_{\text{on A by 2}}$ to $T_{\text{on B by 2}}$. T(on A by 2) = T(on B by 2)
Q9: Explain. equal and opposite reaction

Q10: Compare the magnitude of $T_{\text{on A by 1}}$ to $T_{\text{on B by 2}}$. T(on A by 1) > T(on B by 2)
Q11: Explain. first string pulls both blocks while string 2 only pulls block b

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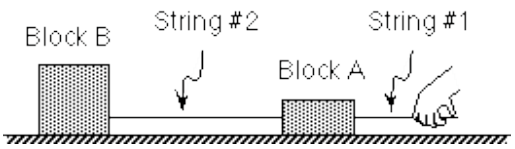
Consider the same situation as above. (Recall that there is no friction between the table and blocks.)

Q12. Determine the tension in string 2 if the hand exerts a force of 12 N, the mass of block A is 2 kg, and the mass of block B is 4 kg. (Only include the value in your answer; do not include units in your answer.) 8

Q13. Explain. the tension is equal to mass times acceleration and since the acceleration is 2 and the mass is 4 the tension is 8

Student#: **NAME**

Two blocks of unequal mass ($m_A < m_B$) are connected by a string (string 2). The blocks are placed on a frictionless table and pulled by another string (string 1) that is attached to block A such that both blocks move together faster and faster. Assume both strings are inextensible and massless.



Q4: Compare the magnitude of the acceleration of block A to block B: aA = aB

Q5: Explain. Since A and B are at rest relative to eachother, their accelerations must be equal.

Q6: Compare the magnitude of $T_{\text{on A by 1}}$ to $T_{\text{on 1 by A}}$. T(on A by 1) = T(on 1 by A)

Q7: Explain. The force on A by string 1 is the third law force pair of the force on string 1 by B.

Q8: Compare the magnitude of $T_{\text{on A by 2}}$ to $T_{\text{on B by 2}}$. T(on A by 2) = T(on B by 2)

Q9: Explain. The force on A by string 2 is the third law force pair of the force on B by string 2.

Q10: Compare the magnitude of $T_{\text{on A by 1}}$ to $T_{\text{on B by 2}}$. T(on A by 1) > T(on B by 2)

Q11: Explain. The force in string 1 is pulling both A and B, whereas the force in string 2 is pulling only B.

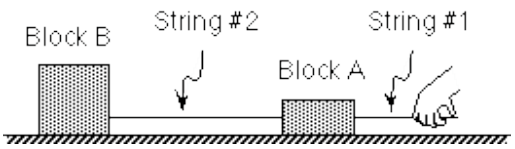
Consider the same situation as above. (Recall that there is no friction between the table and blocks.)

Q12. Determine the tension in string 2 if the hand exerts a force of 12 N, the mass of block A is 2 kg, and the mass of block B is 4 kg. (Only include the value in your answer; do not include units in your answer.) 8

Q13. Explain. the acceleration of the system as a whole is 2 m/s^2(12N/(2kg+4kg)). 2 m/s^2*2kg of block A is 4N, leaving 8N (4kg * 2m/s^2) to be transfered to block B.

Student#: **NAME**

Two blocks of unequal mass ($m_A < m_B$) are connected by a string (string 2). The blocks are placed on a frictionless table and pulled by another string (string 1) that is attached to block A such that both blocks move together faster and faster. Assume both strings are inextensible and massless.



Q4: Compare the magnitude of the acceleration of block A to block B: aA = aB
Q5: Explain. The acceleration for the whole system must be equal.

Q6: Compare the magnitude of $T_{\text{on A by 1}}$ to $T_{\text{on 1 by A}}$. T(on A by 1) = T(on 1 by A)
Q7: Explain. Newton's 3rd law

Q8: Compare the magnitude of $T_{\text{on A by 2}}$ to $T_{\text{on B by 2}}$. T(on A by 2) = T(on B by 2)
Q9: Explain. Tension in a string is equal

Q10: Compare the magnitude of $T_{\text{on A by 1}}$ to $T_{\text{on B by 2}}$. T(on A by 1) > T(on B by 2)
Q11: Explain. Some tension is relieved by mass A.

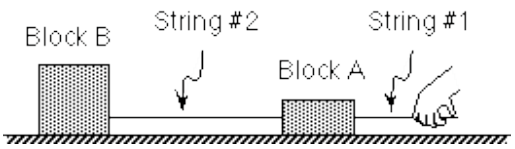
Consider the same situation as above. (Recall that there is no friction between the table and blocks.)

Q12. Determine the tension in string 2 if the hand exerts a force of 12 N, the mass of block A is 2 kg, and the mass of block B is 4 kg. (Only include the value in your answer; do not include units in your answer.) 8

Q13. Explain. Net acceleration times total mass= net forceNet acceleratin * mass B = tension2

Student#: **NAME**

Two blocks of unequal mass ($m_A < m_B$) are connected by a string (string 2). The blocks are placed on a frictionless table and pulled by another string (string 1) that is attached to block A such that both blocks move together faster and faster. Assume both strings are inextensible and massless.



Q4: Compare the magnitude of the acceleration of block A to block B: aA = aB

Q5: Explain. becuase both blocks mover together, so their acceleration should be the same.

Q6: Compare the magnitude of $T_{\text{on A by 1}}$ to $T_{\text{on 1 by A}}$. T(on A by 1) > T(on 1 by A)

Q7: Explain. *** the acceleration is the same in here***the tension on a by 1 pulls the mass of both block a and b. however, the tension on 1 by a only pulls the mass of block b. therefore, the tension on a by 1 is greater than the tension on 1 by a.

Q8: Compare the magnitude of $T_{\text{on A by 2}}$ to $T_{\text{on B by 2}}$. T(on A by 2) = T(on B by 2)

Q9: Explain. the tension in this case is an innert force, also we are using the massless string, so the tension on a by 2 is equal to the tension on 2 by a.

Q10: Compare the magnitude of $T_{\text{on A by 1}}$ to $T_{\text{on B by 2}}$. T(on A by 1) > T(on B by 2)

Q11: Explain. from the previous examples we know that, T on a by 1 is greater than T on a by 2, which is equal to T on b by 2, so we conclude that, I on a by 1 is greater than I on b by 2.

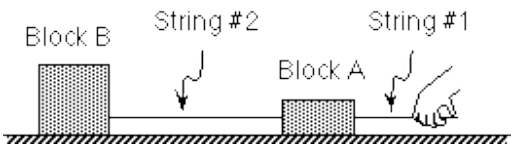
Consider the same situation as above. (Recall that there is no friction between the table and blocks.)

Q12. Determine the tension in string 2 if the hand exerts a force of 12 N, the mass of block A is 2 kg, and the mass of block B is 4 kg. (Only include the value in your answer; do not include units in your answer.) 8

Q13. Explain. by using newton's second law, F = (mB + mA)a--> a = 2 meter per second squar. Also FB = mB x a = tension --> = 4 x 2 = 8.

Student#: **NAME**

Two blocks of unequal mass ($m_A < m_B$) are connected by a string (string 2). The blocks are placed on a frictionless table and pulled by another string (string 1) that is attached to block A such that both blocks move together faster and faster. Assume both strings are inextensible and massless.



Q4: Compare the magnitude of the acceleration of block A to block B: aA > aB

Q5: Explain. because the blocks are being pulled at the same force, F =ma and ma <mb

Q6: Compare the magnitude of $T_{\text{on A by 1}}$ to $T_{\text{on 1 by A}}$. T(on A by 1) < T(on 1 by A)

Q7: Explain. becuase the block is moving therefore there must be a larger force in that direction

Q8: Compare the magnitude of $T_{\text{on A by 2}}$ to $T_{\text{on B by 2}}$. T(on A by 2) = T(on B by 2)

Q9: Explain. smae string same tension

Q10: Compare the magnitude of $T_{\text{on A by 1}}$ to $T_{\text{on B by 2}}$. T(on A by 1) > T(on B by 2)

Q11: Explain. becuase it must pull more mass

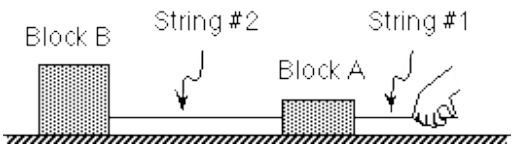
Consider the same situation as above. (Recall that there is no friction between the table and blocks.)

Q12. Determine the tension in string 2 if the hand exerts a force of 12 N, the mass of block A is 2 kg, and the mass of block B is 4 kg. (Only include the value in your answer; do not include units in your answer.) 12

Q13. Explain. because it is moving at the same speed

Student#: **NAME**

Two blocks of unequal mass ($m_A < m_B$) are connected by a string (string 2). The blocks are placed on a frictionless table and pulled by another string (string 1) that is attached to block A such that both blocks move together faster and faster. Assume both strings are inextensible and massless.



Q4: Compare the magnitude of the acceleration of block A to block B: aA = aB

Q5: Explain. Because the strings are attaching them, they are moving as if they were one system, so therefore their accelerations are equal. a=v/t and v and t are the same for both blocks.

Q6: Compare the magnitude of $T_{\text{on A by 1}}$ to $T_{\text{on 1 by A}}$. T(on A by 1) > T(on 1 by A)

Q7: Explain. A doesn't exert any force back on the string.

Q8: Compare the magnitude of $T_{\text{on A by 2}}$ to $T_{\text{on B by 2}}$. T(on A by 2) < T(on B by 2)

Q9: Explain. It doesn't make any sense unless it was this way. T on A by 2 doesn't even exist.

Q10: Compare the magnitude of $T_{\text{on A by 1}}$ to $T_{\text{on B by 2}}$. T(on A by 1) < T(on B by 2)

Q11: Explain. Block B had a greater mass.

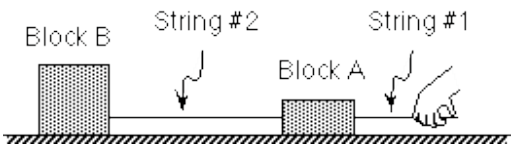
Consider the same situation as above. (Recall that there is no friction between the table and blocks.)

Q12. Determine the tension in string 2 if the hand exerts a force of 12 N, the mass of block A is 2 kg, and the mass of block B is 4 kg. (Only include the value in your answer; do not include units in your answer.) 27.2

Q13. Explain. I used previous knowledge.

Student#: **NAME**

Two blocks of unequal mass ($m_A < m_B$) are connected by a string (string 2). The blocks are placed on a frictionless table and pulled by another string (string 1) that is attached to block A such that both blocks move together faster and faster. Assume both strings are inextensible and massless.



Q4: Compare the magnitude of the acceleration of block A to block B: aA = aB

Q5: Explain. The magnitude of the acceleration should be equal because it is being pulled on a frictionless surface.

Q6: Compare the magnitude of $T_{\text{on A by 1}}$ to $T_{\text{on 1 by A}}$. T(on A by 1) = T(on 1 by A)

Q7: Explain. They are action-reaction forces

Q8: Compare the magnitude of $T_{\text{on A by 2}}$ to $T_{\text{on B by 2}}$. T(on A by 2) = T(on B by 2)

Q9: Explain. They are action-reaction forces

Q10: Compare the magnitude of $T_{\text{on A by 1}}$ to $T_{\text{on B by 2}}$. T(on A by 1) < T(on B by 2)

Q11: Explain. The mass of block b is bigger

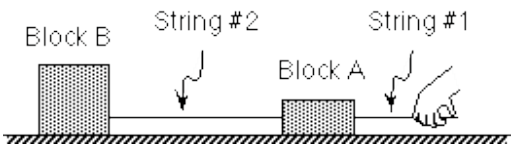
Consider the same situation as above. (Recall that there is no friction between the table and blocks.)

Q12. Determine the tension in string 2 if the hand exerts a force of 12 N, the mass of block A is 2 kg, and the mass of block B is 4 kg. (Only include the value in your answer; do not include units in your answer.) 2

Q13. Explain. it is just the force of the hand divided by the mass of the two blocks

Student#: **NAME**

Two blocks of unequal mass ($m_A < m_B$) are connected by a string (string 2). The blocks are placed on a frictionless table and pulled by another string (string 1) that is attached to block A such that both blocks move together faster and faster. Assume both strings are inextensible and massless.



Q4: Compare the magnitude of the acceleration of block A to block B: aA = aB

Q5: Explain. The objects move in a system. The accelerations are the same for both objects because the strings don't stretch.

Q6: Compare the magnitude of $T_{\text{on A by 1}}$ to $T_{\text{on 1 by A}}$. T(on A by 1) = T(on 1 by A)

Q7: Explain. Newton's Third Law

Q8: Compare the magnitude of $T_{\text{on A by 2}}$ to $T_{\text{on B by 2}}$. T(on A by 2) = T(on B by 2)

Q9: Explain. Newton's Third Law

Q10: Compare the magnitude of $T_{\text{on A by 1}}$ to $T_{\text{on B by 2}}$. T(on A by 1) < T(on B by 2)

Q11: Explain. B has a greater mass and therefore a greater Tension.

Consider the same situation as above. (Recall that there is no friction between the table and blocks.)

Q12. Determine the tension in string 2 if the hand exerts a force of 12 N, the mass of block A is 2 kg, and the mass of block B is 4 kg. (Only include the value in your answer; do not include units in your answer.) 8

Q13. Explain. Sum of the forces is mass * accel. I solved for tensin in Str2 for B and substitued that in to the system of A. Solved for acceleration (2) and plugged that into B and got a tension of 8.