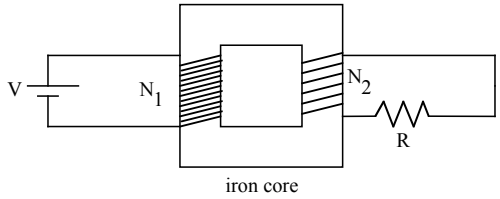
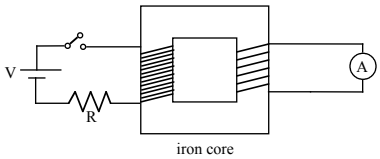
A transformer is attached to a battery and a resistor as shown. In “steady state”, the voltage difference across the resistor R is ...



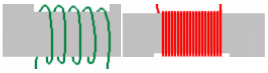
A: V B: V N1/N2 C: V N2/N1
D: 0 E: Other

The primary coil of a transformer is connected to a battery, a resistor, and a switch. The secondary coil is connected to an ammeter. When the switch is closed, the ammeter shows…



A: I=0 B: I ≠0, for a brief instant
C: steady I ≠0 after switch closed

From Mazur “Peer Instruction”

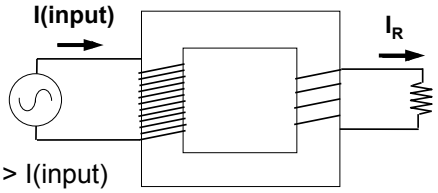


Transformer

If there are 4 primary coils and 40 secondary coils, what can you say about "power out" (V_{out}*I_{out}) compared to "power in" (V_{in}*I_{in}) (for AC input)

A) About the same
B) Power out will be 10x greater
C) Power out will be 10x smaller
D) Something else!

A step-down transformer is attached to an AC voltage source and a resistor. How does I_S compare to the current that is drawn from the AC source I(in)



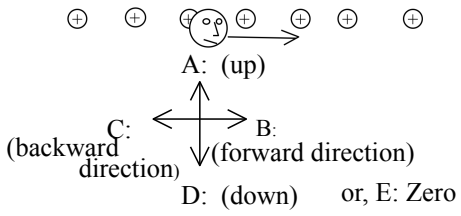
A) I_S > I(input)
B) I_S < I(input)
C) I_S = I(input)

Excel wants to reduce the energy wasted during power transmission from the plant to Boulder.
P_o=iV of the plant is 300 MW.

If they double Voltage V, by what factor does the power lost in the cable ($P_{lost}=i^2R_{cable}$) decrease?

A: No decrease B: 2x C: 4x D: 8x

A row of + charges is fixed on the ground.
A person with a gauss-meter runs *right* along (in front of) the row of charges.
What is the direction of the B-field the observer measures?



How do you generate light (electromagnetic radiation)?

A) Stationary charges
B) Charges moving at a constant velocity
C) Accelerating charges
D) b and c
E) a, b, and c

c=3E8 m/s

VERY roughly, how far away is one “light second”?

A) Here to New York City
B) Here to the moon
C) Here to the nearest star
D) (?? A “light second” is not a *distance*?)