

STUDENT ID: \_\_\_\_\_

NAME: \_\_\_\_\_

## 1010, Fall 2012, Fun-Sheet Exercise 2.

Each m/c question is worth 1 pt. **YOU SHOULD ONLY PICK 1 of the 2** Long Answers for 10 pts:

30 pts M/C 10pts Long Answer. Total points = 40.

Beware of grabbing at a numerical answer simply because you happen to see that number as you are calculating. We are sneaky and put in choices that are numbers you are likely to produce if you are not sure how to do the problem correctly. For many problems, it is good to make a simple sketch to picture the problem correctly.

**For all of these problems, assume that air resistance is not important *unless* you are told otherwise.**

**Conversions & Constants** you may or may not need:

$$1 \text{ pound} = 4.45 \text{ N} \quad 1 \text{ mph} = 0.447 \text{ m/s.} \quad g = 9.8 \text{ m/s}^2 \text{ (but you can use } 10 \text{ m/s}^2 \text{ )}$$

$$\text{density of water} = \rho_w = m / V = 1000 \text{ kg / m}^3$$

**Formulas you may or may not need.**

$$KE = \frac{1}{2} m v^2$$

$$GPE = m g h$$

$$W = f d$$

$$W_{\text{ext}} - |W_{\text{friction}}| = \Delta PE + \Delta KE$$

$$\text{Power} = E / t$$

$$PV + \frac{1}{2} m v^2 + mgh = E_{\text{total}}$$

$$P + \frac{1}{2} \rho v^2 + \rho gh = E_{\text{total}}/V = E_{\text{total per unit volume}}$$

To ensure that you properly understand the question, we strongly recommend that you make a sketch of the situation described by the problem before giving an answer.

# Yellah

Write the color on your M/C answer sheet. Return both the answer sheet and the exam.

**'On my honor as a University  
of Colorado at Boulder student  
I have neither given nor received  
unauthorized assistance on this  
work.'**

Signature \_\_\_\_\_