

## Reviewing Acceleration, Weight, &amp; Momentum Problems

*Instructions: Complete the following problems. SHOW ALL WORK. No work = no credit. Do not forget your units.*

## Review

- What is the equation for acceleration? \_\_\_\_\_.
- What is the equation for weight? \_\_\_\_\_.
- What is the equation for momentum? \_\_\_\_\_.
- What is the unit for force? \_\_\_\_\_
- What is the unit for mass? \_\_\_\_\_
- What is the unit for acceleration? \_\_\_\_\_
- What is the unit for weight? \_\_\_\_\_
- What is the unit AND value for acceleration due to gravity on Earth? \_\_\_\_\_
- What is the unit for momentum? \_\_\_\_\_
- What is the unit for velocity/speed? \_\_\_\_\_

1. What net force is required to accelerate a cart at a rate of  $5 \text{ m/s}^2$  that has a mass of 748 kg?

$$F = \underline{\hspace{2cm}}$$

$$m = \underline{\hspace{2cm}}$$

$$a = \underline{\hspace{2cm}}$$

2. What is the mass of a wrecking ball if it produces a force of 12,000 N while accelerating  $3.1 \text{ m/s}^2$ ?

$$F = \underline{\hspace{2cm}}$$

$$m = \underline{\hspace{2cm}}$$

$$a = \underline{\hspace{2cm}}$$

3. What is the acceleration of a baseball if it has a mass of 0.45 kg and hits the catcher's glove with a force of 30 N?

$$F = \underline{\hspace{2cm}}$$

$$m = \underline{\hspace{2cm}}$$

$$a = \underline{\hspace{2cm}}$$

4. A television weighs 25 N. What is its mass on Earth?

$W =$  \_\_\_\_\_

$g =$  \_\_\_\_\_

$m =$  \_\_\_\_\_

5. What is the weight for an object that has a mass of 199.4 kg?

$W =$  \_\_\_\_\_

$g =$  \_\_\_\_\_

$m =$  \_\_\_\_\_

6. A marble is rolling at a velocity of 2.5 m/s with a momentum of 0.75 kg•m/s. What is its mass?

Momentum = \_\_\_\_\_

Mass = \_\_\_\_\_

Velocity = \_\_\_\_\_

7. How much momentum does a 15 kg mass moving at 30 m/s have?

Momentum = \_\_\_\_\_

Mass = \_\_\_\_\_

Velocity = \_\_\_\_\_

8. What is the velocity of a 10.5 kg object that has a momentum of 1150 kg•m/s?

Momentum = \_\_\_\_\_

Mass = \_\_\_\_\_

Velocity = \_\_\_\_\_