

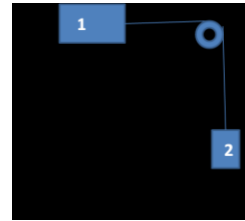
Quiz #5

Name: _____

1. What is the acceleration of mass 2 if there is no friction on Mass 1?
 - a. Less than 9.8 m/s^2
 - b. 9.8 m/s^2
 - c. More than 9.8 m/s^2

2. If a big truck hits a small car, which exerts the larger force on the other?
 - a. The big truck exerts the larger force on the car.
 - b. The small car exerts the larger force on the truck.
 - c. Neither, they exert equal force on each other.
 - d. Depends on the speed and direction of each vehicle.

3. You blow up a balloon but don't tie off the end. Then you let it go.
 - a. Draw a diagram showing all the action reaction pairs of forces on the balloon.
 - b. Draw a free body diagram showing the forces on the balloon next to your action-reaction pair diagram.
 - c. Explain how these two types of diagrams are different.



4. A 5.0 bucket is lowered into a well. Find the tension in the rope for the following two circumstances:
- Acceleration downward at 2.0 m/s^2
 - Constant velocity

$$\Sigma \vec{F} = m\vec{a}$$

$$\sin \theta = \text{opp/hyp}$$

$$x_f = x_i + v_{xi}\Delta t + \frac{1}{2} a_x(\Delta t)^2$$

$$w = mg$$

$$\cos \theta = \text{adj/hyp}$$

$$v_{xf} = v_{xi} + a_x\Delta t$$

$$f = \mu n$$

$$\tan \theta = \text{opp/adj}$$

$$v_{xf}^2 = v_{xi}^2 + 2a_x(\Delta x)$$

$$\vec{g} = -9.8 \text{ m/s}^2$$