PracTest Force Interaction ID#

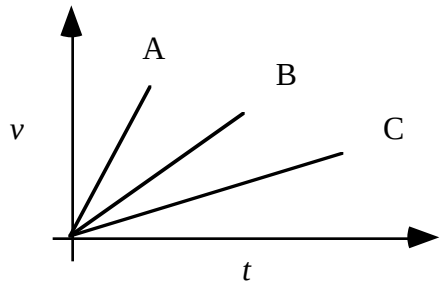
DO NOT MARK THIS FORM. $g = 9.8 m/s^2$

1. A crane lifts a heavy beam at a constant velocity. During this motion, the upward force of the crane on the beam is _?_ the downward gravitational force on the beam.
   A. greater than B. less than C. equal to

2. When the net force acting on an object doubles, the resulting acceleration
   A. quadruples B. doubles C. remains the same
   D. halves E. none of these

3. A marker pen with a certain mass is blown through a tube with a certain force and experiences a certain acceleration. Which of the following arrangements will result in marker pen experiencing an equal acceleration?
   A. a pen with half the mass acted on by twice the net force
   B. a pen with twice the mass acted on by half the net force
   C. Both of these
   D. None of these

Graph B represents the velocity vs. time plot of a cart with a certain mass pulled by a certain force.



4. Graph C represents the motion of a cart with _?_ mass pulled by _?_ force.
   A. half the; half the B. the same; the same C. twice the; twice the
   D. half the; the same E. the same; half the F. the same; twice the

5. A 5 kg wagon is pushed with a 10 N net force. What is the resulting acceleration of the wagon?
   A. $0.5\ m/s^2$ B. $2\ m/s^2$ C. $5\ m/s^2$ D. $20\ m/s^2$ E. $50\ m/s^2$

6. The weight of a 60kg person is
   A. 6.1N B. 60N C. 69.8N D. 588N

A tennis ball and a steel sphere are dropped from the same height above level ground (neglect air resistance).

7. Which hits the ground with the greater speed?
   A. the steel sphere B. the tennis ball C. same for both

8. According to Newton's third law,
   I. for every force, there is an equal and opposite reaction force, but each force acts on a different object.
   II. action and reaction forces are always equal in magnitude, but not always opposite in direction.
   III. action and reaction forces are always opposite in direction, but not always equal in magnitude.
   A. I only B. II only C. III only D. I and II only
   E. I and III only F. II and III only G. I, II and III H. None of these

9. If you were to sit on the ground, there would be a force due to gravity pulling you toward the earth. The other force in the Newton's 3rd law force pair is
   A. the force of the ground pushing you up.
   B. the force you exert on the ground beneath you.
   C. your gravitational pull upward on the earth.
   D. There is no Newton's 3rd law force pair for force due to gravity.

10. When you hold a bowling ball, there is a downward force acting on it. The force that is the Newton's 3rd law pair to that downward force is
    A. The force you exert on the ground beneath you
    B. The tension in your arm
    C. The gravitational pull of the ball on the earth
    D. The force the ground exerts on you
    E. The gravitational pull of the earth on the ball

11. When a large asteroid collides with a smaller one in space,
    A. the larger asteroid exerts a greater force on the smaller asteroid than the smaller one exerts on the larger one.
    B. the small asteroid will undergo a greater acceleration than the larger one.
    C. both A and B.
    D. neither A nor B.