Name: ID#

1. a small car (0.5 ton) moving at a speed of 180 km/h collides head-on with a massive truck (3 ton) moving slowly at a speed of 20 km/h. compared to the force of the car on the truck, the force of the truck on the car is

    a. 6 times   b. 1/6   c. 9 time   d. none of the answers(equal)

2. You stand next to a wall on a frictionless skateboard and push the wall with a force of 30 N. If your weight is 600 N, what will be your acceleration? Ans.:
$a = F/m = 30/60 = 0.5$ m/s*s

3. A moving object on which no forces are acting will continue to move with constant
A) acceleration   B) impulse   C) momentum   D) all of these

4. Which one of the following statements is wrong
        A. An object can reverse direction while maintaining a constant acceleration
        B. If an object is not accelerating it means no forces are acting on it? No net force
        C. If it takes 1 N to push horizontally on your book to make it slide at constant velocity, then the force of friction is 1 N.
        D. A force is needed to go around a curve.

5. How does the terminal speed of a parachutist before opening a parachute compare to terminal speed after
        a. greater   b. smaller   c. same   d. can not tell

6. A fireman slides down a pole with an acceleration of 2.0 m/s^2. If the force of friction with the pole is 300 N, then what is the mass of the fireman? Ans.:
$mg - f = ma \Rightarrow m = f/(g-a) = 300/8 = 37.5$ kg

7. A 1 kg cart moving initially to the left at 5.0 m/s strikes a 2-kg cart initially moving to the right at a speed of 3 m/s. If the two stick together then what is their final velocity.
      Ans.: $v = 1/3$ m/s

8. Two carts the first has double the mass the second one and its speed is 4 m/s which is double the speed of the second one. They move in the same direction and then collide elastically. If the final speed of the first cart is 2 m/s, what is the final speed of the second cart. Ans.: $v = 6$ m/s

9. Two carts the first has double the mass and its speed is 4 m/s which is double the speed of the second one. They move in opposite directions and then collide inelastically. What is the final speed of the carts
      Ans.: $v = 2$ m/s

10. A 0.1 kg ball is coming towards you with a speed of 10 m/s and then you shoot it in the opposite direction with a force of 7 N, so that it moves in the opposite direction with a

speed of 15 m/s. What is the duration (time) of impact?

Ans.: $t = m \Delta v / F = 0.35 \ s$

Quiz # 2.B

Name: _____ ID# _____

1. A fireman slides down a pole with an acceleration of 3.0 m/s². If the force of friction with the pole is 400 N, then what is the mass of the fireman. Ans.:

2. A 1 kg cart moving initially to the left at 5.0 m/s strikes a 2-kg cart initially moving to the right at a speed of 3 m/s. If the two stick together then what is their final speed.

Ans.:

3. A small car (2 ton) moving at a speed of 180 km/h collides head-on with a massive truck (5 ton) moving slowly at a speed of 20 km/h. compared to the force of the car on the truck, the force of the truck on the car is

    a. 5/2 times   b. 2/5 times   c. 9 time   e. none of the answers

4. Two carts the first has double the mass of the second and its speed is 6 m/s which is double the speed of the second one. They move in the same direction and then collide elastically. If the final speed of the first cart is 3 m/s, what is the final speed of the second cart. Ans.:

5. You stand next to a wall on a frictionless skateboard and push the wall with a force of 30 N. If your mass is 70 kg, what will be your acceleration? Ans.:

6. A moving object on which no forces are acting will continue to move with constant
A) acceleration   B) impulse   C) momentum   D) all of these

7. Two carts the first has double the mass of the second one and its speed is 3 m/s which is double the speed of the second one. They move in opposite directions and then collide inelastically. What is the final speed of the carts

Ans.:

8. Which one of the following statements is wrong
       A. If it takes 1 N to push horizontally on your book to make it slide at constant velocity, then the force of friction is 1 N.
       B. A force is needed to go around a curve.
       C. An object can reverse direction while maintaining a constant acceleration
       D. If an object is not accelerating it means no forces are acting on it?

9. A ball is coming towards you with a speed of 10 m/s and then you shoot it in the opposite direction with a force of 9 N, so that it moves in the opposite direction with a speed of 12 m/s, then the duration (time) of impact is:

    Ans.:

10. How does the terminal speed of a parachutist after opening a parachute compare to terminal speed before

    a. greater   b. smaller   c. same   d. can not tell