

C 7. Two objects, A and B, have the same size and shape, but A is twice as heavy as B. When they are dropped simultaneously from a tower, they reach the ground at the same time, but A has a greater ...

- a) speed
- b) acceleration
- c) momentum
- d) All the above

C 8. Which of the following is not an example of an elastic (or nearly elastic) collision?

- a) gas molecules bouncing of one another
- b) a super ball bouncing off the floor
- c) a piece of soft clay bouncing off the wall
- d) billiard balls colliding

## Momentum

**Directions:** Solve and show your work

8.53 m/s 9. A 7.50 kg ball has a momentum of 64.0 kg·m/s. What is the ball's velocity?

$$p = mv$$

$$\frac{64.0 \text{ kg} \cdot \text{m/s}}{7.50 \text{ kg}} = v$$

$$v = 8.53 \text{ m/s}$$

## Impulse

**Directions:** Solve and show your work

$p = 3.59 \times 10^4 \text{ kg} \cdot \text{m/s}$  10. A car weighing 23,500 N and moving at 15.0 m/s is acted upon by a 960.0 N force until it is brought to a stop.

$$\underline{37.4 \text{ s} = t}$$

- a) What is the car's momentum?
- b) How long does the braking force act on the car to bring it to a stop.

$$p = mv$$

$$\frac{23,500 \text{ kg} \cdot 15 \text{ m/s}}{9.81 \text{ m/s}^2}$$

$$t = \frac{23,500 \cdot 15}{(960)(9.81)}$$

$$\boxed{2396} \text{ kg}$$

**"Great minds discuss ideas, average minds discuss events, small minds discuss people." -- Hyman Rickover**