

(7.02) - Momentum Worksheet

1. A 300 gram object moves along a horizontal stretch of road with a velocity of 2.5 m/s. How much momentum does this object have?
 - a. 0.12 kgm/s
 - b. 0.75 kgm/s
 - c. 8.33 kg m/s
 - d. 120 kgm/s
 - e. 750 kgm/s

2. An object of mass M moves with velocity V and its momentum is recorded as P . If the same mass were to instead move with a velocity $3V$, what would be its new momentum?
 - a. $9P$
 - b. $3P$
 - c. Still P
 - d. $1/3 P$
 - e. $1/9 P$

For each of the following scenarios, determine whether or not the law of conservation of momentum should be used. If your answer is "NO," explain why.

3. A block slides along a horizontal, frictionless surface before colliding and sticking with another block.

4. A block is released at the top of a rough, angled ramp. The block accelerates down the ramp and is moving quickly when it reaches the bottom.

5. A bullet flies through the air. The bullet eventually strikes and gets stuck in a wall.

6. A second bullet flies through the air. This bullet eventually strikes and gets stuck in a metal can, which was resting on a fence post. The can and bullet fall off the post.

7. A heavy medicine ball flies through the air. A motionless ice skater catches the medicine ball, which causes her to move in the direction of the ball's initial direction of travel.