

Name _____
Honors Physics
Period _____

Date _____
Momentum WS #1
Mrs. Nadworny

Momentum

Directions: Read online textbook pages 207 – 214. Solve the following problems using the GUESS method and proper significant figures. Be sure to show ALL work.

- The magnitude of the momentum of an object is 64.0 kilogram-meter per second. If the velocity of the object is doubled, the magnitude of the momentum will be
A) $32.0 \frac{\text{kg}\cdot\text{m}}{\text{s}}$ B) $64.0 \frac{\text{kg}\cdot\text{m}}{\text{s}}$ C) $128 \frac{\text{kg}\cdot\text{m}}{\text{s}}$ D) $256 \frac{\text{kg}\cdot\text{m}}{\text{s}}$
- A 0.0600 kilogram ball traveling at 60.0 meters per second hits a concrete wall. What speed must a 0.0100 kilogram bullet have in order to hit the wall with the same magnitude of momentum as the ball?
A) 3.60 m/s B) 6.00 m/s C) 360. m/s D) 600. m/s
- At the same time, 8 kilograms of feathers and 6 kilograms of lead are dropped from a height of three meters.
 - After they have fallen 1 meter, the 6 kilograms of lead has
 - Less mass and less inertia
 - Less mass and the same inertia
 - More mass and less inertia
 - More mass and the same inertia
 - After they have fallen 1 meter, the 6 kilograms of lead has
 - Less speed and less momentum
 - Less speed and the same momentum
 - The same speed and less momentum
 - The same speed and the same momentum
- A 6.2 kg duck is flying around the pond. It has a momentum of 30.7 kg·m/s. What is the duck's speed?
- A 5.00 kilogram block slides along a horizontal, frictionless surface at 10.0 meters per second for 4.00 seconds. Calculate the magnitude of the block's momentum.
- A mass is traveling east with a constant velocity of 40. meters per second and a momentum of 1.0×10^3 kilogram-meters per second. Calculate the size of the mass.

Answers in size order: 5.0, 25, 50.0