Name: _____   Period: _____   Date: _____

Momentum Practice
Astronomy

Instructions: Calculate the momentum, mass, or velocity for each of the problems below. Refer to your notes for the formula needed and be sure to show all of your work! Momentum is usually expressed as "*p*" and should have the *kg·m/sec* unit. Points will be deducted for any work or units which are not displayed. Please circle your final answer.

1. If the truck has a mass of 2,100 kilograms, what is its momentum? (v = 40 m/s) Express your answer in kg·m/sec.

2. If the car has a mass of 1,500 kilograms, what is its momentum? (v = 45 m/s)

3. An 10-kilogram bowling ball is rolling in a straight line toward you. If its momentum is 20 kg·m/sec, how fast is it traveling?

4. A beach ball is rolling in a straight line toward you at a speed of 1 m/sec. Its momentum is 0.5 kg·m/sec. What is the mass of the beach ball?

5. A 4,550-kilogram truck travels in a straight line at 15.0 m/sec. What is its momentum?

6. A 1,000-kilogram car is also traveling in a straight line. Its momentum is equal to that of the truck in the previous question. What is the velocity of the car?

7. Which would take more force to stop in 10 seconds: an 8.0-kilogram ball rolling in a straight line at a speed of 0.5 m/sec or a 5.0-kilogram ball rolling along the same path at a speed of 2.0 m/sec?

8. The momentum of a car traveling in a straight line at 25 m/sec is 24,000 kg·m/sec. What is the car's mass?

9. A 0.18-kilogram baseball is thrown in a straight line at a velocity of 20 m/sec. What is the momentum of the baseball?

10. Another pitcher throws the same baseball in a straight line. Its momentum is 4.2 kg·m/sec. What is the velocity of the ball?

11. A 1-kilogram turtle crawls in a straight line at a speed of 0.005 m/sec. What is the turtle's momentum?