Name _____ Date _____ Period_____

Answer the following problems on a separate sheet of paper. Show all work.

1. A force of 6.00 N acts on a 3.00 kg object for 10.0 seconds.

   a. What is the object's change in momentum?

   b. What is its change in velocity?

2. What force is needed to bring a 1.10×10^3 kg car moving at 22.0 m/s to a halt in 20.0 s.

3. A net force of 2.00×10^3 N acts on a rocket of mass 1.00×10^3 kg. How long does it take this force to increase the rocket's velocity from zero to 2.00×10^3 m/s?

4. A snowmobile has a mass of 2.50×10^3 kg. A constant force acts upon it for 60.0 s. The snowmobile's initial velocity is 6.00 m/s and its final velocity is 28.0 m/s.

   a. What is its change in momentum?

   b. What is the magnitude of the force that acts upon it?

5. A car weighing 15,680 N and moving at 20.0 m/s is acted upon by a 6.40×10^2 N force until it is brought to a halt,

   a. What is the car's mass?

   b. What is its initial momentum?

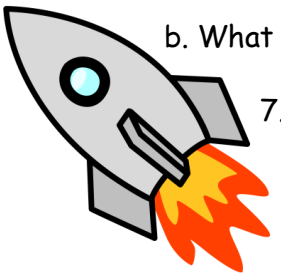
   c. What is the change in the car's momentum?

   d. How long does the braking force act on the car to bring it to a halt?

6. The velocity of a 6.00×10^2 kg mass is changed from 10.0 m/s to 44.0 m/s in 68.0 s by an applied, constant force.

   a. What change in momentum does the force produce?

   b. What is the magnitude of the force?



7. What is the final velocity of a rocket of mass 2.00×10^4 kg, starting from rest, if a net force of 1.50×10^5 N acts upon it for 15.0 seconds?