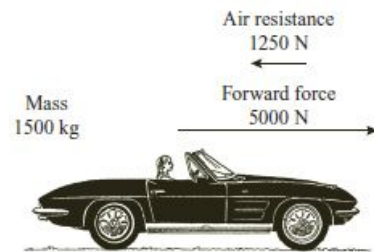


Name: _____

Newton's Second Law Practice Problems

1. A 1500 kg car has an applied forward force of 5000 N and experiences an air resistance of 1250 N. What is the car's acceleration?

- a. 2.5 m/s^2
- b. 3.3 m/s^2
- c. 4.2 m/s^2
- d. 9.8 m/s^2



2. Newton's 2nd Law exhibits the direct relationship between acceleration and net force. Which of the following choices best describes this relationship?

- a. Acceleration causes a net force directly related to the mass.
- b. Net force causes an acceleration inversely related to the mass.
- c. Both (a) and (b) correctly describe the meaning of Newton's 2nd Law of Motion.

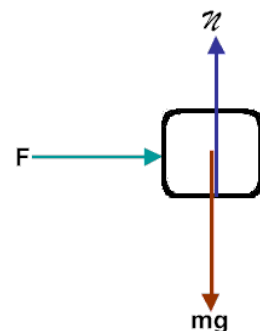
7. An object moves with constant velocity while three forces act on it. Which of the following must be true?

- I. the three forces have equal magnitude
- II. the vector sum of the three forces is zero
- III. the forces must be perpendicular to the direction the object is traveling

- a) I only
- b) II only
- c) I and II
- d) I and III
- e) II and III

4. If the object shown weighs 50 N and the applied force equals 10 N, what is the magnitude of the resulting acceleration? (use $g = 10$ not 9.8).

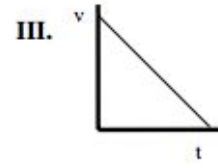
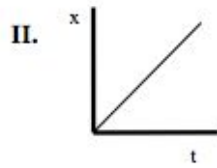
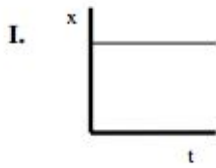
- a. 10 m/s^2
- b. 5 m/s^2
- c. 2 m/s^2
- d. 0.5 m/s^2



Name: _____

Newton's Second Law Practice Problems

14. Which of the following graphs shows an object whose net force is zero?



- a) I only
- b) II only
- c) I and II
- d) I and III
- e) II and III

6. The coefficient of friction between the ground and a 2.00 kg object is 0.400. What horizontal force must be applied to give the object a 5.00 m/s^2 acceleration?

7. A dog sled team drags a sled horizontally across level snow. The coefficient of friction between the 100.0 kg sled and the snow is 0.0500. If the dogs pull with 300.0 N, what is the acceleration of the sled?

8. Becket pulls on a 2.00 kg block with a horizontal force of 10.0 N. As the block slides across the table, it accelerates at a rate of 3.00 m/s^2 . What is the force of friction acting on the block?

9. Vicky pulls George (75.0 kg) along the ground in his slide with a 200.0 N horizontal force. George accelerates at 2.00 m/s^2 . What is the coefficient of friction between George's slide and the ground? (Hint: You will need to first figure out the force of friction.)