Name: _____ Section: _____

Acceleration Practice Problems

Directions: Use the acceleration formula below to answer the questions that follow.

You must show all work!

$$\text{acceleration} = \frac{\text{final velocity} - \text{initial velocity}}{\text{time}}$$

1) A car goes from 4.47 m/s to 17.9 m/s in three seconds.
   a. Did this car speed up or slow down? Explain your reasoning.

   b. Did this car accelerate or decelerate? Explain your reasoning.

   c. Should your answer be positive or negative? Explain your reasoning.

   d. Calculate the acceleration.

2) An airplane flying at a velocity of 610 m/s lands and comes to a complete stop over a 53 second period.
   a. Did this airplane speed up or slow down? Explain your reasoning.

   b. Did this airplane accelerate or decelerate? Explain your reasoning.

   c. Should your answer be positive or negative? Explain your reasoning.

   d. Calculate the acceleration.

3) What is the acceleration of a runner who goes from 1.4 m/s to 2.2 m/s in four seconds?

4) A roller coaster is moving at 25 m/s at the bottom of a hill. Three seconds later it reaches the top of the next hill, moving at 10 m/s. What is the deceleration of the roller coaster?

5) What is the acceleration of a racing car if its speed is increased uniformly from 44 m/s to 66 m/s over an 11 second period?

6) A 2011 Porsche 911 Turbo S goes from 0-27 m/s in 2.7 seconds. What is the car's acceleration?

7) A hot air balloon is rising at a speed of 10 km/hr. One hour later, the balloon is still rising at 10 km/hr. What is its acceleration?