SCIENCE

NAME: PERIOD: DATE:

ACCELERATION CLASSWORK #3

WRITE THE FORMULA. SHOW YOUR WORK. LABEL YOUR ANSWER. CIRCLE YOUR ANSWER.

You can use a calculator but you must show all of the steps involved in doing the problem.

PART ONE: SHORT ANSWER

1. What are two different factors that can cause a change in velocity?

2. What is the acceleration of a car that travels in a straight line at a constant speed?

3. Describe a situation in which you can accelerate even though your speed doesn't change.

PART TWO: CALCULATIONS

4. A roller coaster car rapidly picks up speed as it rolls down a slope. As it starts down the slope, its speed is 4 m/s, but 3 seconds later, at the bottom of the slope, its speed is 22 m/s. What is its average acceleration?

5. A cyclist accelerates from 0 m/s to 8 m/s in 3 seconds. What is his acceleration? Is this acceleration greater than that of a car which accelerates from 0 to 30 m/s in 8 seconds?

6. A car advertisement states that a certain car can accelerate from rest to 70 km/h in 7 seconds. Find the car's average acceleration.

7. A lizard accelerates from 2 m/s to 10 m/s in 4 seconds. What is the lizard's average acceleration?

8. A runner covers the last straight stretch of a race in 4 s. During that time, he speeds up from 5 m/s to 9 m/s. What is the runner's acceleration in this part of the race?

9. You are traveling in a car that is moving at a velocity of 20 m/s, suddenly, a car 10 meters in front of you slams on its brakes. At that moment, you also slam on your brakes and slow to 5 m/s. Calculate the acceleration if it took 2 seconds to slow your car down.

10. A ball is dropped from the top of a building. After 2 seconds, its velocity is measured to be 19.6 m/s. Calculate the acceleration for the dropped ball.

11. If a Ferrari, with an initial velocity of 10 m/s, accelerates at a rate of 50 m/s/s for 3 seconds, what will its final velocity be?