Science 10
Extra Practice Acceleration

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

2. A car accelerates at a rate of 3.0 m/s^2. If its original velocity is 8.0 m/s, **how many seconds will it take** the car to reach a final velocity of 25.0 m/s?

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

4. The final velocity of a car is 30m/s. The car is accelerating at a rate of 2.5m/s^2 over an 8 second period of time. What is the **initial velocity** of the car?

5. If a Ferrari, with an initial velocity of 10 m/s, accelerates at a rate of 50 m/s^2 for 3 seconds, what will its **final velocity** be?

6. A car traveling at a velocity of 30.0 m/s encounters an emergency and comes to a complete stop**. How much time** will it take for the car to stop if its rate of deceleration is -4.0 m/s^2?

7. A cart rolling down an incline for 5.0 seconds has an acceleration of 4.0 m/s^2. If the cart has a beginning velocity of 2.0 m/s, what is its **final velocity**?

8. A parachute on a racing dragster opens and changes the velocity of the car from 85 m/s to 45 m/s in a period of 4.5 seconds. What is the **acceleration** of the dragster?

9. A motorcycle traveling at 25 m/s accelerates at a rate of 7.0 m/s^2 for 6.0 seconds. What is the **final velocity** of the motorcycle?

10. A skier accelerates at a rate of 4.6m/s^2 for 4.5s. What is his **initial velocity** if his final velocity is 21m/s?