Name:_____ Date:_____

Mr. Croom's Physics Chapter 2: One Dimensional Motion

Kinematic 2

Solve the following problems.

1. A locomotive slows from 26 m/s to zero in 18 seconds. Calculate its acceleration and the distance it traveled during that interval

2. A truck slows from 25 m/s to 15 m/s in 4 seconds. How far does it travel?

3. A hockey puck sliding initially at 15 m/s comes to rest after traveling 75 meters. How long does it take for the puck to stop?

4. A state trooper times a vehicle through a 35 meter speed trap. If the vehicle takes 1.9 seconds to travel through the trap at a constant speed, calculate the speed of the vehicle.

5. A plane, starting from rest at one end of a runway, undergoes a constant acceleration of 1.6 m/s^2 for a distance of 1600 m before takeoff. What is its velocity upon takeoff? What is the time required for takeoff?

6. A car is traveling along a road when the driver sees a deer, and brakes accelerating at 6 m/s^2. If the car comes to rest in 7 seconds, find the car's original velocity. If the deer is 130 meters away, do you hit it?

7. An electron in a vacuum tube acquires a velocity of 5.3×10^8 cm/s in a distance of 0.25 cm. Find the acceleration of the electron. How long does it take to travel this distance?

8. A boy sliding down a hill accelerates at 1.4 m/s^2. If he started from rest, in what distance would he reach a speed of 7.0 m/s? How long does this take?