Name:_____ Date:_____

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

More Kinematics 2

Solve the following problems

1. A flower pot falls from a windowsill 25 m above the sidewalk. How fast is the flower pot going when it strikes the ground? How much time does a passerby on the sidewalk below have to move out of the way before the flower pot hits the ground?

2. A physics student throws a softball straight up into the air. Her friend has a stopwatch and determines that the ball was in the air for a total of 3.56 s. With what speed was it thrown upward? How high did it rise?

3. A water rocket starts from rest and rises straight up with an acceleration of 5 m/s^2 until it runs out of water 2.5 s later. If it continues to rise until its speed is zero, what will be its maximum height?

4. The roof of Taipei 101, one of the tallest buildings in the world, is 1474 feet. If you dropped a penny from the roof, and ignored air resistance, how fast would it be going when it reached the ground? If you now throw the penny down at 15m/s while someone on the ground throws a ball up at 75m/s, how high above the ground would the penny and the ball meet? How long would this take?

Name:_____

5. A car is traveling at 95 km/hr. The driver steps on the brakes and the car comes to a stop in 60.0 m. What is the car's acceleration? How far did the car travel?

6. The fastest production motorcycle (Kawasaki ZX-11 Mr. Turbo!!) can reach 27 m/s in 1.9 seconds. What is the motorcycle's acceleration, and how far did it travel while accelerating? How many g's did the driver experience?

7. A policeman driving at 55 mph observes a car 200 ft ahead of him speeding at 80 mph. If the county line is 1200 ft away from the police car, what must the acceleration of the police car be in order to catch the speeder before he leaves the county?

8. A ball is launched upward from the ground and travels to a height of 100 m before it comes back down and lands again on the ground. Find the following: The time it takes to get to this height. The total time the ball is in the air. The initial velocity of the ball. The velocity of the ball when it hits the ground.