Constant Acceleration WS#5   Payton Physics
Date: _____   Name: _____ Pd.____

Solve each problem using the models we have developed in class. Rely on the SEF if you get stuck. **DO THE WORK ON SEPARATE SHEETS OF PAPER OR IN YOUR NOTEBOOK.**

1. As Jay Cutler is sacked he throws the football straight up. Sketch a position vs time graph and a velocity vs time graph for the motion of the football from the instant it leaves his hand until the instant before it is intercepted by the packers. ☹

2. For the throw described in #1, assume the velocity of the football as it leaves the hand is 38.2 m/s. Determine (a) the maximum height the football reaches, and (b) the total time the football is in the air. Assume the football is caught at the same height above the ground as it was thrown.

3. A crazed physics student goes to the roof of the school, 14.2 m above the ground, and throws a pumpkin straight down with an initial speed of 19.4 m/s. With what velocity does the pumpkin strike the ground?

4. A second crazed physics student throws another pumpkin from the same place as the student of #3, but throws her pumpkin up at 19.4 m/s. Again, determine the velocity of the pumpkin just before it strikes the ground below.

5. A day-dreaming chemistry student is absentmindedly gazing out of the classroom window when he sees a pumpkin fall past. The window is 2.0 m tall, and the student notes that the pumpkin took 0.26 second to fall past the window. From what height above the window was the pumpkin dropped?

6. On the moon, the acceleration due to gravity is only 1.6 m/s/s. If someone on earth can throw a baseball 24.2 m high on earth, how high could she throw it on the moon? (*Assume you can throw with the same initial velocity on both celestial objects*)

7. A physics teacher stands at the edge of a cliff at Canyonlands National Park. The teacher wants to know how high above the base of the cliff he is, so, making sure there are no hikers below drops a large rock over the edge of the cliff. 5.8 seconds after releasing the rock, the teacher hears the sound of the rock hitting the ground below. If sound can travel at a constant speed of 330 m/s, how high is the cliff?