Complete the following using the methods demonstrated in class. When you complete the problem, check the answer with your Mongoose neighbor.

1. An acorn falls from rest atop a 12 meter high tree. It reaches the ground with a velocity of -15.5m/s. How fast was the acorn accelerating?

2. What is the velocity of a wrecking ball that is initially moving upward at 1.20 m/s when it experiences an acceleration of .310 m/s^2 downward over a displacement of .750 m?

3. How long does a train take (in seconds) to stop if it slows down uniformly for 218 m from 75.0 km/h west?

4. A girl skiing down a hill accelerates at 1.40 m/s^2. If she started from rest, in what distance would she reach a speed of 7.00 m/s?

5. An amphibious vehicle starts from rest and accelerates at a rate of .21 m/s^2 over a time of 52 seconds.

    a) Find the magnitude of the vehicle's final velocity.

    b) Find the displacement of the vehicle.

6. A red pickup truck starts from rest and travels for 5.0 s with a uniform acceleration of 1.5 m/s^2. The driver then applies the brakes, causing a uniform acceleration of -2.0 m/s^2. If the brakes are applied for 3.0 seconds, how fast is the truck going at the end of the braking period and how far has it gone from its starting point?

Complete the following using the methods demonstrated in class. When you complete the problem, check the answer with your Cobra neighbor.

1. An acorn falls from rest atop a 12 meter high tree. It accelerates at -10.0m/s^2 as it falls to the ground. What is the final velocity of the acorn?

2. What is the acceleration of a wrecking ball that is initially moving upward at 1.20 m/s when it a decrease in velocity to 0.987m/s over a displacement of .750 m?

3. How far (in m) does a train travel before stopping if it slows down uniformly from 75.0 km/h west in 21.0 s?

4. A girl skiing down a hill accelerates at 1.40 m/s^2. If she started from rest, in what would her final velocity be if the hill is 17.5 m long?

5. An amphibious vehicle starts from rest and accelerates at a rate of .21 m/s^2 over a distance of 280 m.

    a)   Find the magnitude of the vehicle's final velocity.

       b) Find the time it takes the vehicle to travel this distance.

6. A red pickup truck starts from rest and travels for 5.0 s with a uniform acceleration of 1.5 m/s^2. The driver then applies the brakes, causing a uniform acceleration of -2.0 m/s^2. If the brakes are applied for 3.0 seconds, how fast is the truck going at the end of the braking period and how far has it gone from its starting point?