1) an object initially at rest reaches a velocity of 30m/s in 6 seconds, how much work is done during this time interval?

2) a roller coaster car with a mass of 1000kg starts at ground level and reaches a maximum height of 128m. what is the change in potential energy for the car? I f all the potential energy is turned into kinetic energy when it reaches the bottom of the hill, how fast will the car be traveling??

3) if the roller coaster in the previous question had a loop at the bottom of the drop what is the maximum radius allowed??

4) a 2.0 kg block is pushed up against a spring whose force constant is 700N/m, compressing it 7.5cm. when the block is released it moves horizontally across a friction less table until it launches off the edge 1.0m above the ground. Find the horizontal distance the block will cover before it hits the ground?

5) the Tesla roadster goes from 0 to 60mph in 3.9 seconds a)how much work is done by the engine? B) what is the average acceleration??