February 20th 2014

Important equations:

v=v0+at

x-x0=v0t+1/2at2

v2=v02+2a(x-x0)

1. A rope is attached to a 50kg block to pull it up a frictionless incline at a constant speed to a height of 3-meters.
   1. Which forces are doing work upon the block?
   2. Is energy conserved?
   3. Calculate the amount of work done upon the crate.
2. From a 50m high platform a 0.1 kg stone is thrown straight upward with initial speed 5 m/s. What is its speed 10 m above the ground?
3. Assume the height of a roller coaster is y=40m.
   1. If the cart starts from rest at point A, what is the speed of the cart at the bottom of the hill?
   2. What is the speed of the cart when it reaches point B?

