Homework1

1) A car is moving with a velocity 35 m/s. What is the velocity in km/h?

   (1km = 1000m) (1 h = 60 minutes) (1 minute = 60 seconds)

   35 m = 35 x 1 km/ 1000 m = 0.035 km

   1 s = 1 x 1 minute / 60 s x 1 hour / 60 min = 1 / 3600 = 0.000278 h

   35 m/s = 0.035 km / 0.000278 h = 126 km/h

2) An object is thrown upward. If it reached the highest point in 8 seconds:
   A) What is the initial speed of the object?
   B) What is the speed of the object when it hits the ground?
   C) What is the time taken for speed of object to be a quarter of the initial speed?
   a) Vf = Vi + a t ---> at max height ---> 0 = Vi – 10 x 8 ----> Vi = 80 m/s
   b) Vf = Vi + a t ---> from max height to ground ---> Vf = 0 – 10 x 8 ---> Vf = -80 m/s
   c) Quarter the initial speed ---> V = 0.25 x 80 = 20 m/s
       Vf = Vi + a t ---> 20 = 80 – 10 x t ---> t = 6 s

3) An object is moving in a horizontal line.

   The position vs time graph is shown in this

   figure:

   a. What is the position of the object at

       T = 2 s? 3m

   b. What is the time when the ball is

       At position x = 6m? 4s

   c. What is the average velocity of

       The object?

       ΔY/ Δx = (3 – 0) / (2 - 0) = 3/2 = 1.5 m/s