HW Set 3 Equations of Motion

Problem 1

a. Write the 5 equations of motion for when the acceleration is zero.

b. An object has an initial velocity of +3 m/s and an initial position of –10 m both at the time $t_i = 0$ s. Write the equations using these initial values.

c. Mark the position of the object from t = 0 s to 6 s in steps of 1 s on the x axis.

d. Plot the position of the object at the times from $t_f = 0$ s to 6 s in steps of 1 s. What is the slope of this plot?

Problem 2

a. Write the 5 equations of motion for when the acceleration is +2 m/s^2.

b. An object has an initial velocity of –8 m/s and an initial position of +4 m both at the time $t_i = 0$ s. Write the equations using these initial values.

c. Mark the position of the object from t = 0 s to 6 s in steps of 1 s on the x axis.

d. Plot the position of the object as a function of time from t = 0 s to 6 s in steps of 1 s.

Problem 3

a. Write the 5 equations of motion for when the acceleration is –1 m/s^2.

b. An object has an initial velocity of +3 m/s and an initial position of +2 m both at the time $t_i = 0$ s. Write the equations using these initial values.

c. Mark the position of the object from t = 0 s to 6 s in steps of 1 s on the x axis.

d. Plot the position of the object as a function of time from t = 0 s to 6 s in steps of 1 s.