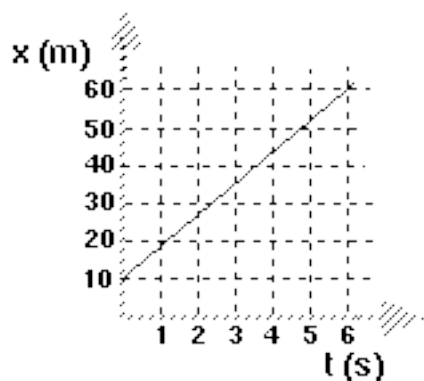


Constant Velocity Particle Model: Review Sheet

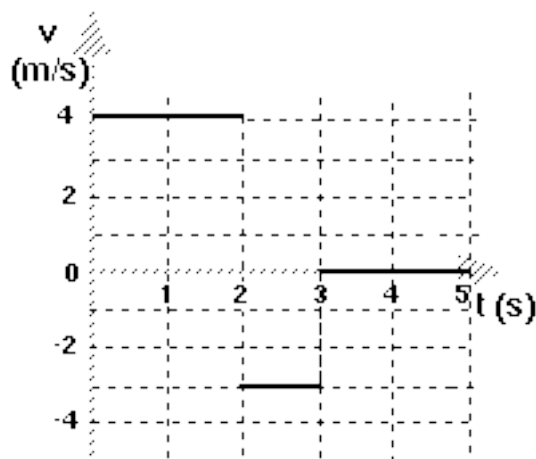
1. Consider the following position vs. time graph.



a. Determine the average velocity of the object.

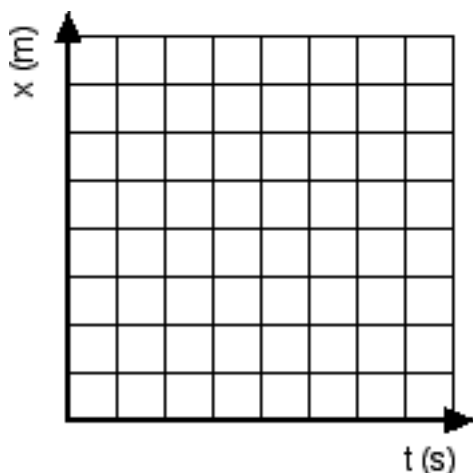
b. Write a mathematical model to describe the motion of the object.

2. Shown below is a velocity vs. time graph for an object.



a. Describe the motion of the object.

b. Draw a corresponding position vs. time graph. Number the axes. You may assume the object starts from the origin.



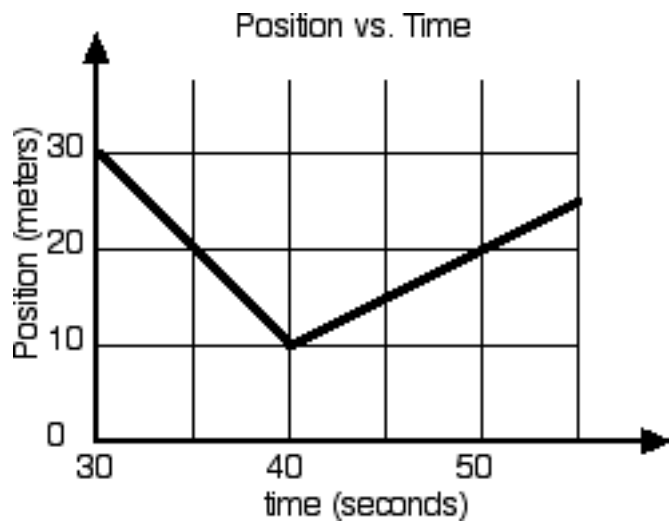
c. How far did the object travel in the interval $t = 1$ s to $t = 2$ s?

d. Find the displacement from $t = 0$ s to $t = 5$ s. Explain how you got your answer.

e. Find the average velocity from $t = 0\text{ s}$ to $t = 5\text{ s}$. Explain how you got your answer.

f. Find the average speed from $t = 0\text{ s}$ to $t = 5\text{ s}$. Explain how you got your answer.

3. A bird travels toward the origin, then suddenly reverses direction.



a. Find the average velocity from $t = 30\text{ s}$ to $t = 40\text{ s}$.

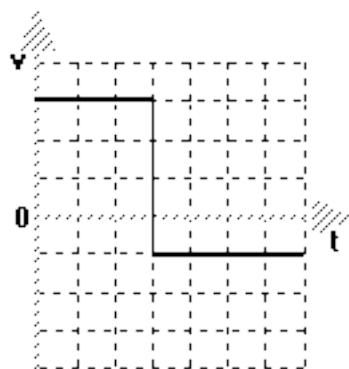
b. Find the average velocity from $t = 40\text{ s}$ to $t = 50\text{ s}$.

c. Determine the average speed from $t = 30\text{ s}$ to $t = 50\text{ s}$.

d. Determine the average velocity from $t = 30\text{ s}$ to $t = 50\text{ s}$.

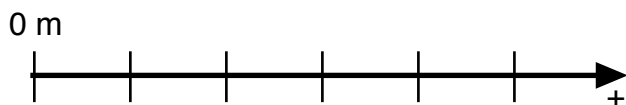
e. Find the velocity at $t = 35\text{ seconds}$.

4. A basketball initially travels at 3 meters per second for 3 seconds:



a. Describe the motion of the ball after $t = 3$ seconds.

b. Draw a quantitative motion map that models the motion of the object.



c. How far did the ball travel from $t = 3\text{s}$ to $t = 7\text{s}$?

5. A racecar reaches a speed of 95 m/s after it is 450 meters past the starting line. If the car travels at a constant speed of 95 m/s for the next 12.5 s , how far will the car be from the starting line? Use the appropriate mathematical model and show how units cancel.