

UNIT II: Review 2022

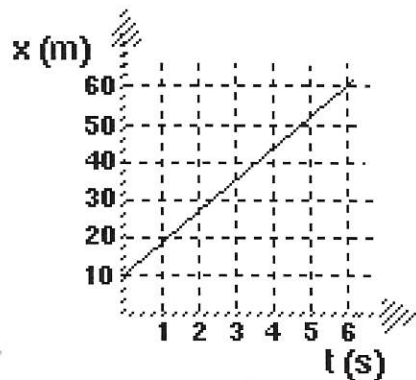
1. Consider the position vs time graph at right.

a. Determine the average velocity of the object.

$$\bar{v} = \frac{\Delta x}{\Delta t} = \frac{60\text{m} - 10\text{m}}{6\text{s}} = 8.3\text{ m/s}$$

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

$$x(m) = 8.3(m/s) \cdot t(s) + 10\text{m}$$

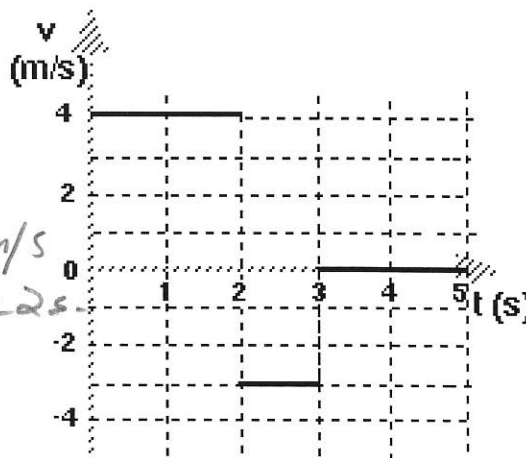


2. Shown at right is a velocity vs time graph for an object.

a. Describe the motion of the object.

OBJECT MOVES AWAY @ 4m/s FOR 2s .
 OBJECT MOVES TOWARD @ 3m/s FOR 1s . OBJECT STOPS FOR 2s .

b. Draw the corresponding position vs time graph. Number the x - axis.

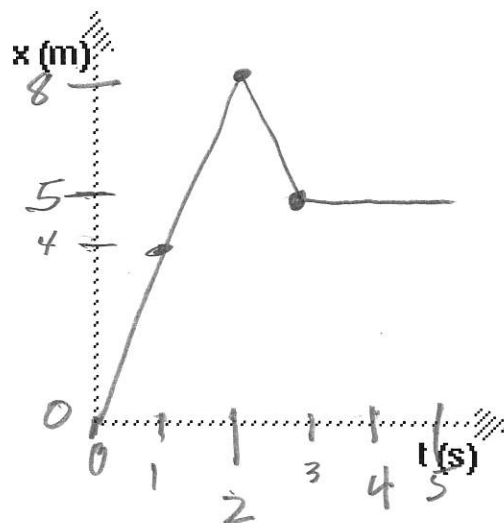


c. How far did the object travel in the interval $t = 1\text{s}$ to $t = 2\text{s}$?

4m

d. What is the total displacement? Explain how you got the answer.

$$\Delta x = x_f - x_i = 5\text{m} - 0\text{m} = 5\text{m}$$



3. Johnny drives to Wisconsin (1920 miles) in 32 hours. He returns home by the same route in the same amount of time.

a. Determine his average speed.

$$\bar{s} = \frac{d}{t} \quad \frac{(1920 \cdot 2) \text{ mi}}{(32 \cdot 2) \text{ hr}} = \frac{60 \text{ mi}}{\text{hr}}$$

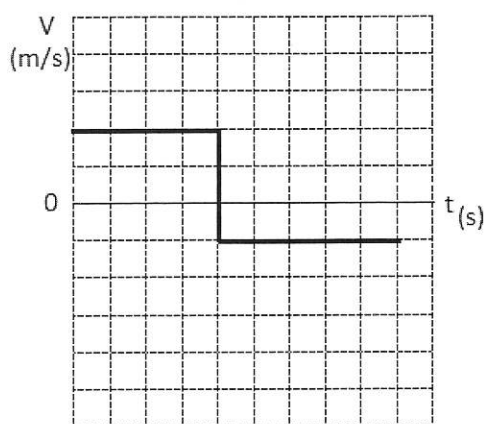
b. Determine his average velocity.

$$\frac{1920 - 1920 \text{ mi}}{64 \text{ hr}} = \frac{0 \text{ mi}}{64 \text{ hr}} = \frac{0 \text{ mi}}{\text{hr}}$$

c. Compare these two values and explain any differences.

*DISTANCE IS USED TO COMPUTE SPEED
WHILE DISPLACEMENT IS USED TO COMPUTE VELOCITY*

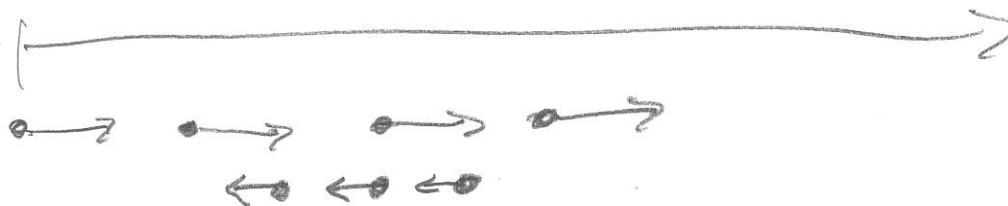
4. Consider the v vs t graph below.



a. Describe the behavior of the object depicted in the graph.

*OBJECT MOVES AWAY @ C.V.
OBJECT THEN MOVES TOWARD
AT HALF THE ORIGINAL SPEED*

b. Draw a motion map that represents the behavior of the object.



5. A race car travels at a speed of 95 m/s. How far does it travel in 12.5 s? Use the appropriate mathematical expression and show how units cancel. (Keep the proper number of sf's.)

$$95 \text{ m/s} \cdot 12.5 \text{ s} = 1187.5 \text{ m}$$

1200 m