

4A Distance: Area Under a Curve

1. What is the area of a rectangle?

$$A = \text{length} \times \text{height}$$

2. a. What is the area of a rectangle with a length of 1 s and a height of 88ft/s?

$$A = (1\text{s}) * (88\text{ft/s}) = 88\text{ft}$$

b. What is the distance traveled by a car in 1 s at a speed of 88ft/s?

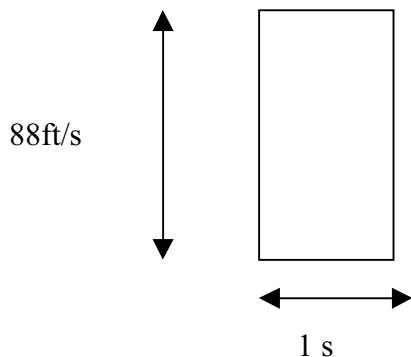
$$\text{distance} = (v) (t) = (88\text{ft/s})(1\text{ s}) = 88\text{ft}.$$

c. Do you notice any correlation between the distance traveled and the area of a speed vs time rectangle.

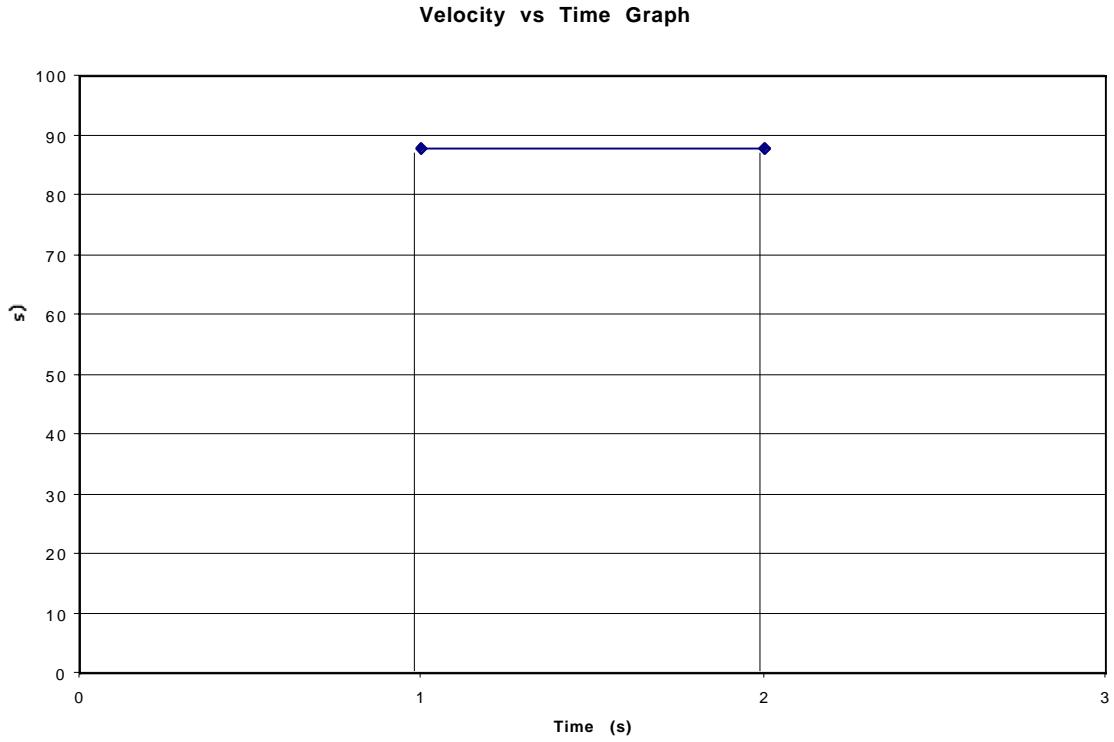
Yes. the distance traveled is the area of a speed vs time rectangle

d. Draw this rectangle with time on the horizontal axis and use your drawing to restate the conclusion reached in part c.

The area of the rectangle below, with time on the horizontal axis and velocity on the vertical axis, indicates the distance traveled.



e. Show the rectangle in part d as a rectangle on a graph where time is the x-axis and velocity is the y-axis.



3. a. What is the area of a rectangle with a length of 1 hr and a height of 60mi/hr?
 $A = (1\text{hr}) * (60\text{mi/hr}) = 60 \text{ mi.}$
- b. What is the distance traveled by a car in 1 hour at a speed of 60mi/hr?
 $\text{distance} = (v) (t) = (60\text{mi/hr}) (1 \text{ hr}) = 60 \text{ mi.}$
- c. Do you notice any correlation between the distance traveled and the area of a speed vs time rectangle.
Yes. the distance traveled is the area of a speed vs time rectangle
- d. Draw this rectangle with time on the horizontal axis and use your drawing to restate the conclusion reached in part c.