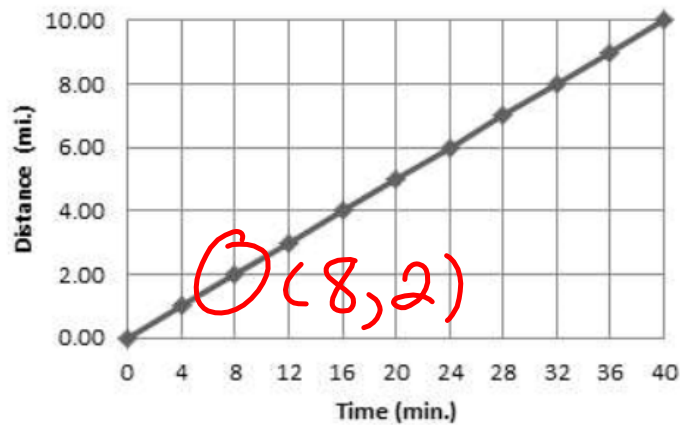


**Homework #29 - Unit Rates on Graphs**

1) Dave went on a 10 mile bike ride. Dave graphed his time on the graph below.



A) Is the amount of miles Dave rode proportional to his time in minutes? Explain.

Yes. The line is straight & starts at the origin.

B) What is the constant of proportionality (k) shown on the graph?

$$\begin{matrix} (8, 2) \\ x & y \end{matrix} \quad \frac{y}{x} = \frac{2}{8} = \frac{0.25}{1}$$

C) Write an equation that shows the relationship above.  $y = 0.25x$

D) What does the constant of proportionality mean in the context of the problem?

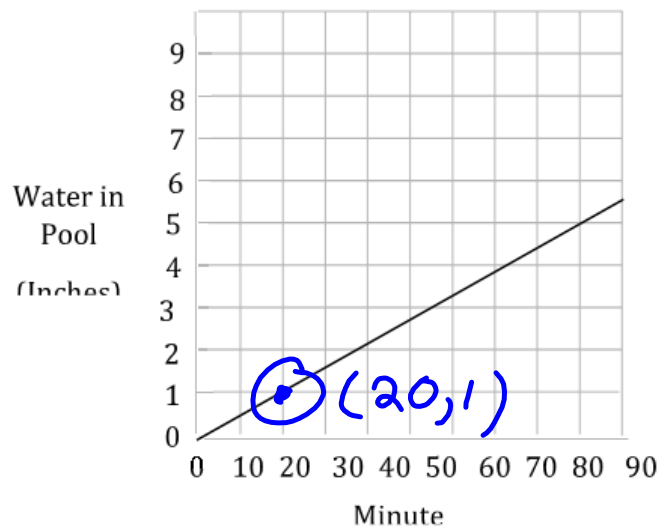
Dave rides 0.25 miles in 1 minute.

E) How many miles does Dave ride if he rides for 44 minutes?

$$\begin{aligned} y &= 0.25x \\ y &= 0.25(44) \\ y &= 11 \text{ miles} \end{aligned}$$

44  
↓  
x

2) Dan is filling his swimming pool with water. He graphs the relationship of how long it takes to fill his pool below.



A) Is the amount of water in the pool proportional to the number of minutes he is filling the pool? Explain.

Yes. The line is straight and starts at the origin.

B) What is the constant of proportionality?

$$\frac{y}{x} \quad (20, 1) \quad k = \frac{1}{20} = .05$$

C) Write an equation that shows the relationship above.  $y = .05x$

D) What does the constant of proportionality mean in the context of the problem?

The pool fills at a rate of .05 inches per minute.

E) If Dan fills his pool for 10 minutes, how many inches of water are in the pool?

$y = .05x$   
 $y = .05(10)$   
 $y = .5 \text{ inches}$