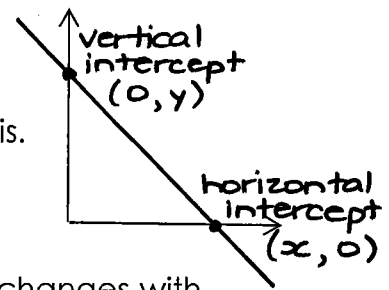


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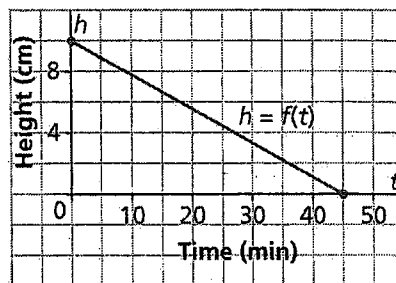
**Foundations of Math & Pre-Calculus 10**  
**Lesson 5.7 ~ Interpreting Graphs of Linear Functions**

A **linear function** is the graph of any line that is not vertical.  
 The **horizontal intercept** is the point where a graph crosses the  $x$ -axis.  
 The **vertical intercept** is the point where a graph crosses the  $y$ -axis.



Example #1: This graph shows how the height of a burning candle changes with time.

Height of a Burning Candle



a) What is the horizontal intercept? What does this represent?

$(45, 0) \rightarrow$  candle burns for a total of 45 min.

b) What is the vertical intercept? What does this represent?

$(0, 10) \rightarrow$  candle is originally 10cm tall

c) What are the domain and range?

$d: 0 \leq t \leq 45$

$r: 0 \leq h \leq 10$

Example #2: Sketch a graph of the linear function  $f(x) = 4x - 3$  by finding the  $x$ -intercept and  $y$ -intercept.

$x$ -intercept :  $y = 0$

$$0 = 4x - 3$$

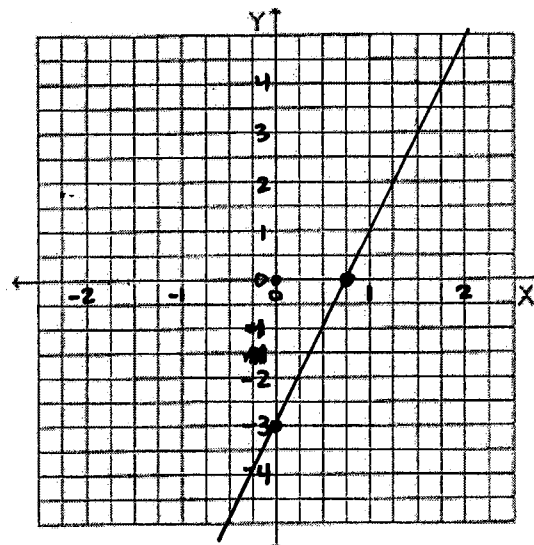
$$\frac{3}{4} = \frac{4x}{4}$$

$0.75 = x$

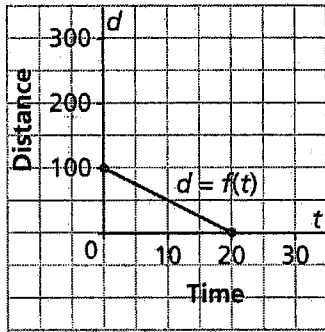
$y$ -intercept:  $x = 0$

$$y = 4(0) - 3$$

$y = -3$

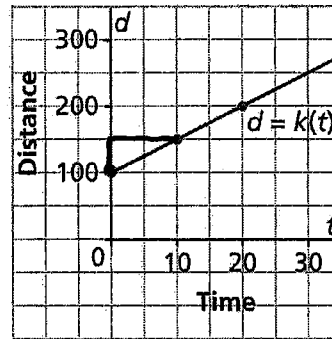


Example #3: Which graph has a rate of change of  $-5$  and a vertical intercept of  $100$ ? Justify your answer.



$$\text{rate of change} = \frac{-100}{20}$$

$$= \boxed{-5}$$



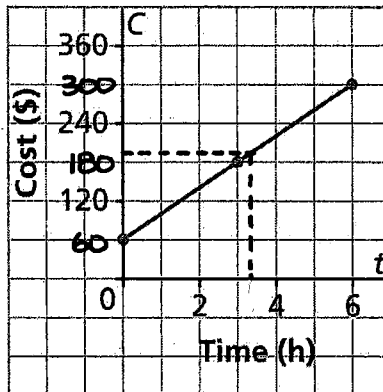
$$\text{rate of change} = \frac{50}{10}$$

$$= \boxed{5}$$

\* both graphs have a y-intercept of  $100$ .

Example #4: This graph shows the total cost for a house call by an electrician for up to  $6$  h work. The electrician charges  $\$190$  to complete a job. For how many hours did she work?

Cost of an Electrician's House Call



y-intercept:  $\$60$

$$\text{rate of change} = \frac{120}{3} = \$40/\text{hr}$$

$$C = 60 + 40t$$

$$190 = 60 + 40t$$

$$\begin{array}{r} -60 \\ \hline \end{array}$$

$$\frac{130}{40} = \frac{40t}{40}$$

$$\boxed{3.25 = t}$$