

Page 213 (variables are positive  $\mathbb{R}$  integers)

74  $(-a, 0)$  and  $(0, -b)$   
 $x_1 \ y_1$                        $x_2 \ y_2$

$$m = \frac{(y_2 - y_1)}{(x_2 - x_1)} = \frac{-b - 0}{0 - (-a)} \rightarrow \frac{-b}{a} \rightarrow \text{slope is neg, line goes down.}$$

76  $(a-b, c)$  and  $(a, a+c)$   
 $x_1 \ y_1$                        $x_2 \ y_2$

$$m = \frac{(y_2 - y_1)}{(x_2 - x_1)} = \frac{(a+c) - c}{a - (a-b)} = \frac{\cancel{a+c} - c}{\cancel{a} - a + b} = \frac{a}{b} \rightarrow \text{slope is pos, line goes up.}$$

$$\textcircled{80} \quad \overset{x_1}{-2}, \overset{y_1}{y} \text{ and } \overset{x_2}{4}, \overset{y_2}{-4}, m = \frac{1}{3}$$

use point slope!  $(y_2 - y_1) = m(x_2 - x_1)$

$$(-4 - y) = \frac{1}{3}(4 - (-2))$$

$$-4 - y = \frac{1}{3}(6)$$

$$-4 - y = 2$$

$$-y = 6$$

$$y = -6$$

$$\textcircled{86} \quad b_2, b_1, b_4, b_3$$

88 a) points given  $\rightarrow (20, 51.7)$  and  $(30, 62.6)$

$$m = \frac{y_2 - y_1}{x_2 - x_1} = \frac{62.6 - 51.7}{30 - 20} = \frac{10.9}{10} = 1.09 \quad (\% \text{ of never married males per year})$$

using point  $(20, 51.7)$ ...

$$(y_2 - y_1) = m(x_2 - x_1)$$

$$(y - 51.7) = 1.09(x - 20)$$

$$y - 51.7 = 1.09x - 21.8$$

$$\begin{array}{r} y - 51.7 \\ + 51.7 \end{array} = \begin{array}{r} 1.09x - 21.8 \\ + 51.7 \end{array}$$

$$y = 1.09x + 29.9$$

b) for function notation let  $t$  = years after 1980 and  $P$  = percent of never married males.  $\rightarrow P(t) = 1.09t + 29.9$

(88) cont

c)  $P(t) = 1.09t + 29.9$  eval for 2015

$$P(35) = 1.09(35) + 29.9$$

$$2015 - 1980 = 35$$

$$\text{so } t = 35$$

$$P(35) = 68.05$$

so the percentage of unmarried males will be 68.05%  
in 2015.

