

2.4

1) *Through* (2, 3), *slope* = *undefined*
 $x = 2$

3) *Through* (2, 2), *slope* = $\frac{1}{2}$
 $y - y_1 = m(x - x_1)$
 $y - 2 = \frac{1}{2}(x - 2)$

5) *Through* (-1, -5), *slope* = 9
 $y - y_1 = m(x - x_1)$
 $y + 5 = 9(x + 1)$

7) *Through* (-4, 1), *slope* = $\frac{3}{4}$
 $y - y_1 = m(x - x_1)$
 $y - 1 = \frac{3}{4}(x + 4)$

9) *Through* (0, -2), *slope* = -3
 $y - y_1 = m(x - x_1)$
 $y + 2 = -3(x - 0)$
 $y + 2 = -3x$

11) *Through* (0, -5), *slope* = $-\frac{1}{4}$
 $y - y_1 = m(x - x_1)$
 $y + 5 = -\frac{1}{4}(x - 0)$
 $y + 5 = -\frac{1}{4}x$

13) *Through* (-5, -3), *slope* = $\frac{1}{5}$
 $y - y_1 = m(x - x_1)$
 $y + 3 = \frac{1}{5}(x + 5)$

15) *Through* (-1, 4), *slope* = $-\frac{5}{4}$
 $y - y_1 = m(x - x_1)$
 $y - 4 = -\frac{5}{4}(x + 1)$

17) *Through* (-1, -5), *slope* = 2
 $y - y_1 = m(x - x_1)$
 $y + 5 = 2(x + 1)$
 $y + 5 = 2x + 2$
 $\frac{-5}{\quad} \quad \frac{-5}{\quad}$
 $y = 2x - 3$

19) *Through* (5, -1), *slope* = $-\frac{3}{5}$
 $y - y_1 = m(x - x_1)$
 $y + 1 = -\frac{3}{5}(x - 5)$
 $y + 1 = -\frac{3}{5}x + 3$
 $\frac{-1}{\quad} \quad \frac{-1}{\quad}$
 $y = -\frac{3}{5}x + 2$

21) *Through* (-4, 1), *slope* = $\frac{1}{2}$
 $y - y_1 = m(x - x_1)$
 $y - 1 = \frac{1}{2}(x + 4)$
 $y - 1 = \frac{1}{2}x + 2$
 $\frac{+1}{\quad} \quad \frac{+1}{\quad}$
 $y = \frac{1}{2}x + 3$

23) *Through* (4, -2), *slope* = $-\frac{3}{2}$
 $y - y_1 = m(x - x_1)$
 $y + 2 = -\frac{3}{2}(x - 4)$
 $y + 2 = -\frac{3}{2}x + 6$
 $\frac{-2}{\quad} \quad \frac{-2}{\quad}$
 $y = -\frac{3}{2}x + 4$

25) *Through* (-5, -3), *slope* = $-\frac{2}{5}$
 $y - y_1 = m(x - x_1)$
 $y + 3 = -\frac{2}{5}(x + 5)$
 $y + 3 = -\frac{2}{5}x - 2$
 $\frac{-3}{\quad} \quad \frac{-3}{\quad}$
 $y = -\frac{2}{5}x - 5$

27) Through $(2, -2)$, slope = 1

$$\begin{aligned}y - y_1 &= m(x - x_1) \\y + 2 &= 1(x - 2) \\y + 2 &= x - 2 \\ \underline{-2 \quad -2} \\y &= x - 4\end{aligned}$$

29) Through $(-3, 4)$, slope = undefined

$$x = -3$$

31) Through $(-4, 2)$, slope = $-\frac{1}{2}$

$$\begin{aligned}y - y_1 &= m(x - x_1) \\y - 2 &= -\frac{1}{2}(x + 4) \\y - 2 &= -\frac{1}{2}x - 2 \\ \underline{+2 \quad +2} \\y &= -\frac{1}{2}x\end{aligned}$$

33) Through $(-4, 3)$ & $(-3, 1)$

$$\begin{aligned}m &= \frac{1-3}{-3-(-4)} = \frac{-2}{1} = -2 \\y - y_1 &= m(x - x_1) \\y - 3 &= -2(x + 4)\end{aligned}$$

35) Through $(5, 1)$ & $(-3, 0)$

$$\begin{aligned}m &= \frac{0-1}{-3-5} = \frac{-1}{-8} = \frac{1}{8} \\y - y_1 &= m(x - x_1) \\y - 1 &= \frac{1}{8}(x - 5)\end{aligned}$$

37) Through $(-4, -2)$ & $(0, 4)$

$$\begin{aligned}m &= \frac{4-(-2)}{0-(-4)} = \frac{6}{4} = \frac{3}{2} \\y - y_1 &= m(x - x_1) \\y + 2 &= \frac{3}{2}(x + 4)\end{aligned}$$

39) Through $(3, 5)$ & $(-5, 3)$

$$\begin{aligned}m &= \frac{3-5}{-5-3} = \frac{-2}{-8} = \frac{1}{4} \\y - y_1 &= m(x - x_1) \\y - 5 &= \frac{1}{4}(x - 3)\end{aligned}$$

41) Through $(3, -3)$ & $(-4, 5)$

$$\begin{aligned}m &= \frac{5-(-3)}{-4-3} = \frac{8}{-7} \\y - y_1 &= m(x - x_1) \\y + 3 &= -\frac{8}{7}(x - 3)\end{aligned}$$

43) Through $(-5, 1)$ & $(-1, -2)$

$$\begin{aligned}m &= \frac{-2-1}{-1-(-5)} = -\frac{3}{4} \\y - y_1 &= m(x - x_1) \\y - 1 &= -\frac{3}{4}(x + 5) \\y - 1 &= -\frac{3}{4}x - \frac{15}{4} \\y - \frac{4}{4} &= -\frac{3}{4}x - \frac{15}{4} \\ \underline{+\frac{4}{4} \quad +\frac{4}{4}} \\y &= -\frac{3}{4}x - \frac{11}{4}\end{aligned}$$

45) Through $(-5, 5)$ & $(2, -3)$

$$\begin{aligned}m &= \frac{-3-5}{2-(-5)} = -\frac{8}{7} \\y - y_1 &= m(x - x_1) \\y - 5 &= -\frac{8}{7}(x + 5) \\y - 5 &= -\frac{8}{7}x - \frac{40}{7} \\y - \frac{35}{7} &= -\frac{8}{7}x - \frac{40}{7} \\ \underline{+\frac{35}{7} \quad +\frac{35}{7}} \\y &= -\frac{8}{7}x - \frac{5}{7}\end{aligned}$$

47) Through $(4, 1)$ & $(1, 4)$

$$\begin{aligned}m &= \frac{4-1}{1-4} = \frac{3}{-3} = -1 \\y - y_1 &= m(x - x_1) \\y - 1 &= -1(x - 4) \\y - 1 &= -x + 4 \\ \underline{+1 \quad +1} \\y &= -x + 4\end{aligned}$$

49) Through (0, 2) & (5, -3)

$$m = \frac{-3-2}{5-0} = \frac{-5}{5} = -1$$

$$y - y_1 = m(x - x_1)$$

$$y - 2 = -1(x - 0)$$

$$y - 2 = -x$$

$$\frac{\quad +2 \quad \quad +2}{\quad \quad \quad \quad \quad}$$

$$y = -x + 2$$

51) Through (0, 3) & (-1, -1)

$$m = \frac{-1-3}{-1-0} = \frac{-4}{-1} = 4$$

$$y - y_1 = m(x - x_1)$$

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

$$y - 3 = 4x$$

$$\frac{\quad +3 \quad \quad +3}{\quad \quad \quad \quad \quad}$$

$$y = 4x + 3$$