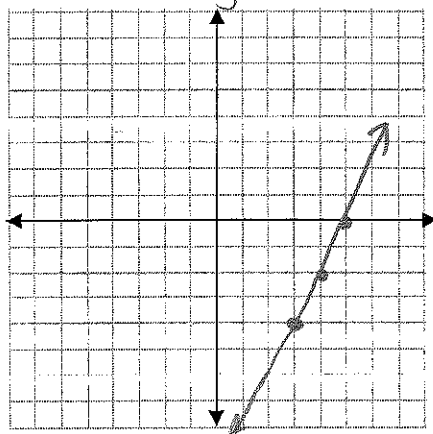Name: KEY

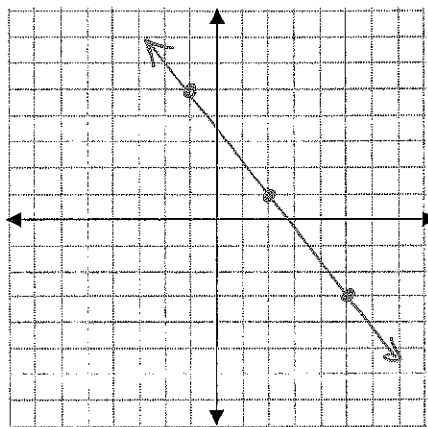● Write the equation of the line in point-slope form and then graph:

1. $(3, -4); m = 2$

$y+4 = 2x-6$
$y = 2x-10$

$y+4 = 2(x-3)$

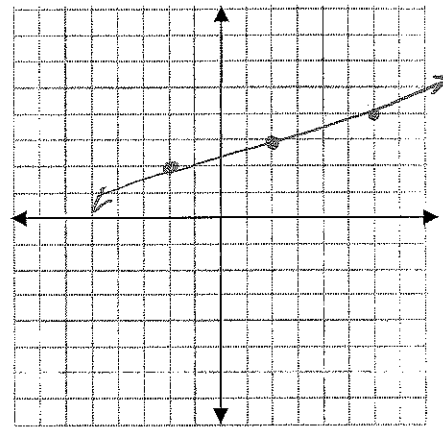equation: $y+4 = 2(x-3)$ or $y = 2x-10$

2. $(-1, 5); m = \frac{-4}{3}$

$y-5 = -\frac{4}{3}(x+1)$

equation: $y-5 = -\frac{4}{3}(x+1)$

3. $(2, 3); m = \frac{1}{4}$

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

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

● A line passes through the given points.

1) Write the equation of the line in point-slope form
2) Re-write the equation in slope-intercept form

4. $(6, -4), (-3, 5)$

$m = \frac{5+4}{-3-6} = \frac{9}{-9} = -1$

$y+4 = -1(x-6)$ or $y-5 = -1(x+3)$

$y+4 = -1x+6$

$y = -x+2$

point-slope form: $y+4 = -1(x-6)$ or $y-5 = -1(x+3)$

slope-intercept form: $y = -x+2$

5. $(-3, -4), (3, -2)$

$m = \frac{-2+4}{3+3} = \frac{2}{6} = \frac{1}{3}$

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

$y+4 = \frac{1}{3}x+1$

$y = \frac{1}{3}x-3$

point-slope form: $y+4 = \frac{1}{3}(x+3)$ or $y+2 = \frac{1}{3}(x-3)$

slope-intercept form: $y = \frac{1}{3}x-3$

Write the equation for the line that is PARALLEL to the given line and that passes through the given point:

6. $(1,3); y = -4x + 5$ $m = -4$

$$y - 3 = -4(x-1)$$
$$y - 3 = -4x + 4$$

7. $(4,0); y = \frac{3}{2}x + 9$ $m = \frac{3}{2}$

$$y - 0 = \frac{3}{2}(x-4)$$
$$y = \frac{3}{2}x - 6$$

8. $(4,-1); y - x = -3$

$$y = x - 3 \quad m = 1$$
$$y + 1 = 1(x-4)$$
$$y + 1 = x - 4$$
$$y = x - 5$$

equation: $y = -4x + 7$ equation: $y = \frac{3}{2}x - 6$ equation: $y = x - 5$

Write the equation for the line that is PERPENDICULAR to the given line and that passes through the given point:

9. $(-5,5); y = -5x + 9$ $m = \frac{1}{5}$

$$y - 5 = \frac{1}{5}(x+5)$$
$$y - 5 = \frac{1}{5}x + 1$$
$$y = \frac{1}{5}x + 6$$

10. $(12,-6); y = 4x + 1$ $m_{\perp} = -\frac{1}{4}$

$$y + 6 = -\frac{1}{4}(x-12)$$
$$y + 6 = -\frac{1}{4}x + 3$$
$$y = -\frac{1}{4}x - 3$$

11. $(6,4); y - 3x = -2$ $m_{\perp} = -\frac{1}{3}$

$$y = 3x - 2$$
$$y - 4 = -\frac{1}{3}(x-6)$$
$$y - 4 = -\frac{1}{3}x + 2$$
$$y = -\frac{1}{3}x + 6$$

equation: $y = \frac{1}{5}x + 6$ equation: $y = -\frac{1}{4}x - 3$ equation: $y = -\frac{1}{3}x + 6$