Lines in a Coordinate Plane Test Review

Name_____ Date_____ Period_____

Write an equation of a line with the given slope and *y*-intercept.

1. $m = \frac{1}{4}, b = \frac{-3}{4}$

$y = mx + b$

Equation:

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

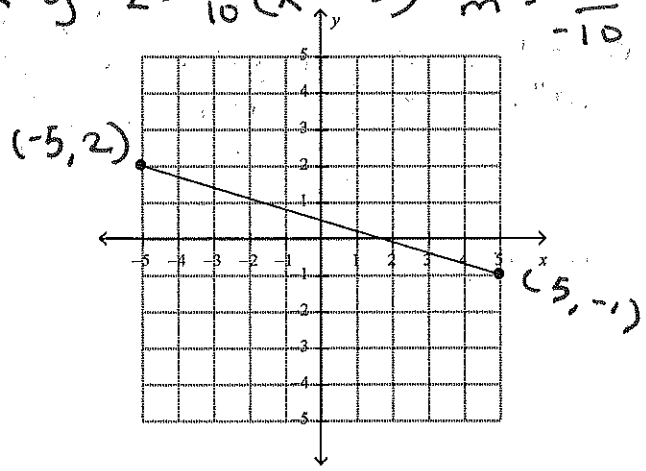
Write the equation for the line.

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

2. Equation:

$y - -1 = \frac{-3}{10}(x - 5)$

OR $y - 2 = \frac{-3}{10}(x - -5)$ $m = \frac{3}{-10}$



Find the x- and y- intercept of the line.

3. $2x + 36y = -18$

x-intercept: $(-9, 0)$ $2x + 36(0) = -18$

$\frac{2x}{2} = \frac{-18}{2}$

$x = -9$

y-intercept: $(0, -\frac{1}{2})$

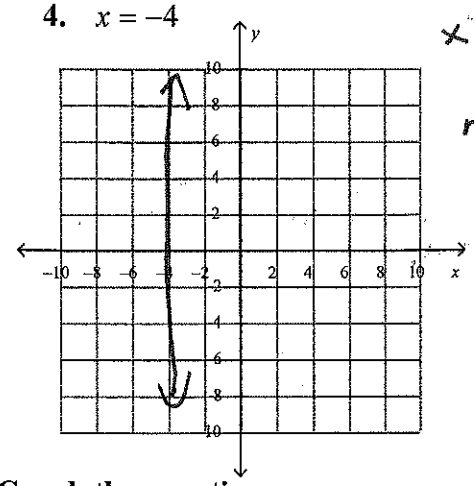
$2(0) + 36y = -18$

$\frac{36y}{36} = \frac{-18}{36}$

$y = -\frac{1}{2}$

Graph the equation.

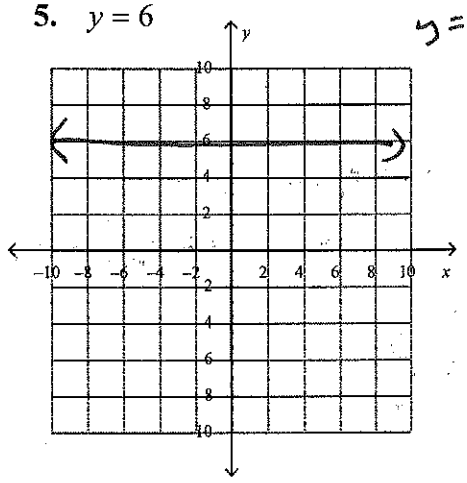
4. $x = -4$



$x = \#$ ↕ $m =$ undefined

Graph the equation.

5. $y = 6$



$y = \#$ ↔ $m = 0$

Write an equation for the line through the given point with the given slope.

6. $(4, -6)$; $m = \frac{3}{5}$

$y - -6 = \frac{3}{5}(x - 4)$

Equation:

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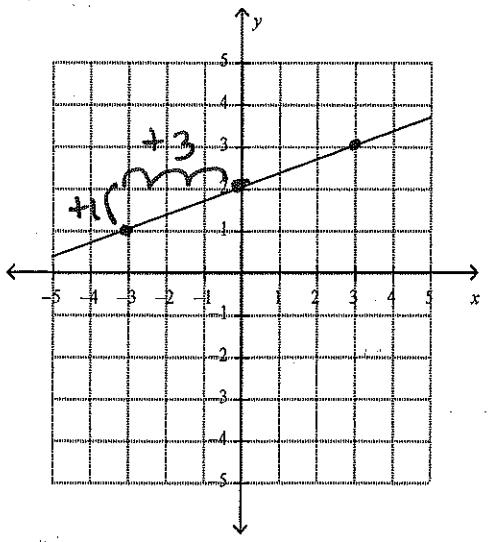
7. Find the slope of the given line.

m = $\frac{1}{3}$



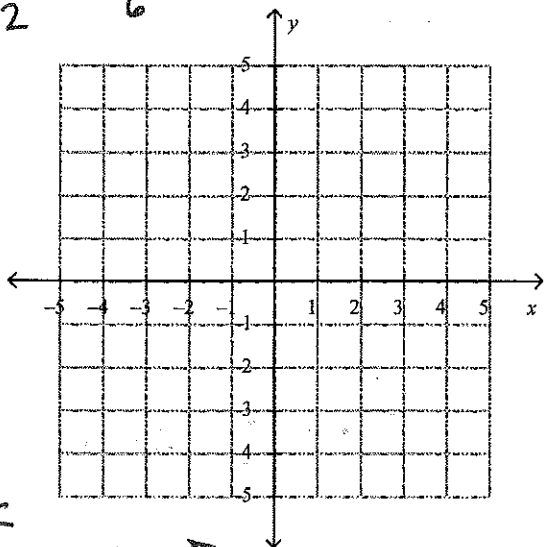
8. A line passes through (2,-1) and (8, 4).

$y - -1 = \frac{5}{6}(x-2)$

a. Write an equation for the line in point-slope form. OR $y - 4 = \frac{5}{6}(x-8)$

b. Rewrite the equation in standard form using integers.

$m = \frac{4+1}{8-2} = \frac{5}{6}$



$Ax+By=C$

$y+1 = \frac{5}{6}(x-2)$

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

$-1 \quad -1$

$y = \frac{5}{6}x - \frac{8}{3}$

$6 \cdot$

$6y = 5x - 16$

$-6y \quad -6y$

$0 = 5x - 6y - 16$

$+16 \quad +16$

$16 = 5x - 6y$

Given the following points and equations, are the graphs of the lines parallel, perpendicular or neither? Explain.

9. $y = 6x + 6$

$-18x + 3y = -54$

$+18x \quad +18x$

$\frac{3y}{3} = \frac{18x}{3} - \frac{54}{3} \rightarrow y = 6x - 18$

11

10. $7x - 4y = 4$

$x - 4y = 3$

neither

$-x \quad -x$

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

11. *Determine whether WX and YZ are* parallel, perpendicular, or neither

W (-3, 1), X (3, 2), Y (4,-2), Z (1, 1)

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

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

$7x - 4y = 4$

$-7x \quad -7x$

$\frac{-4y}{-4} = \frac{-7x+4}{-4} \quad -4$

$y = \frac{7}{4}x - 1$

neither

Write the equation of a line that is perpendicular to the given line and that passes through the given point.

12. $y = \frac{5}{3}x - 11, (0, 5)$

$\perp m = -3/5, (0,5)$

$y = -3/5x + 5$

OR $y - 5 = -\frac{3}{5}(x-0)$

13. $5x - 10y = -25, (2,2)$

$-5x \quad -5x$

$\frac{-10y}{-10} = \frac{-5x}{-10} - \frac{25}{-10}$

$y = \frac{1}{2}x + \frac{5}{2}$

$\perp m = -2$

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

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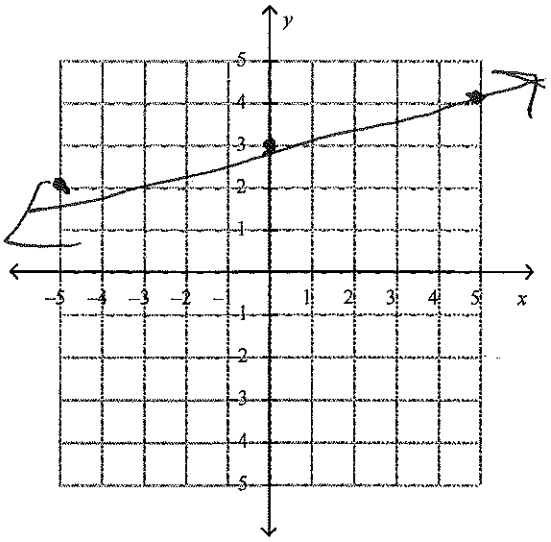
Graph

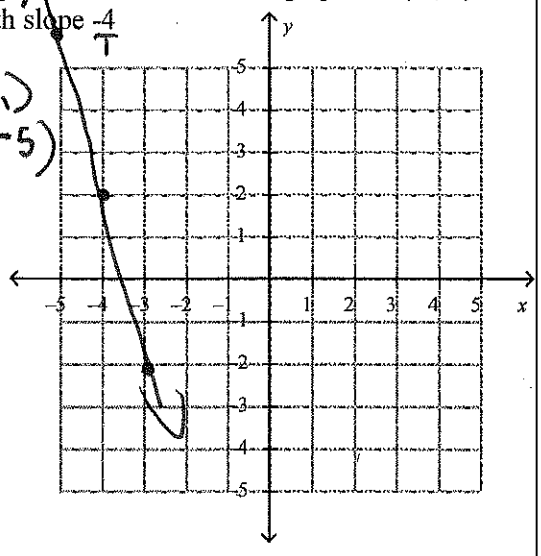
14. $y = \frac{1}{5}x + 3$



15. Write and graph an equation in point-slope form of the line through point $J(-5, 6)$ with slope -4

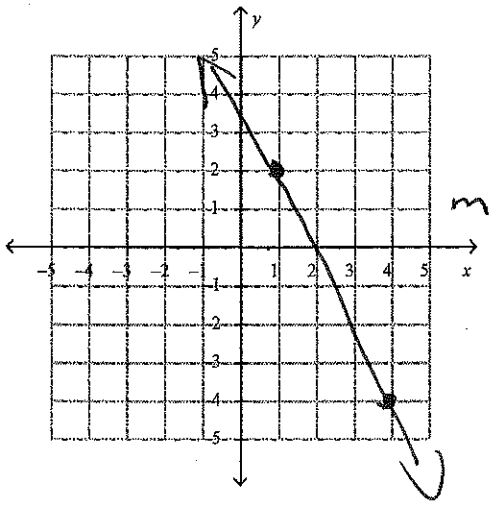
$y - y_1 = m(x - x_1)$

$y - 6 = -4(x - -5)$



16. Write and graph an equation in point-slope form, $y - y_1 = m(x - x_1)$, of the line through points (4, -4) and (1, 2) Use (4, -4) as the point (x_1, y_1).

Equation: $y - -4 = -2(x - 4)$



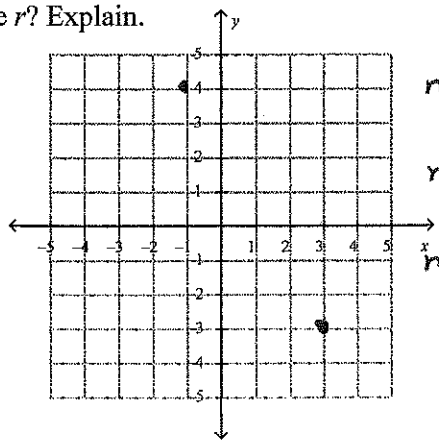
$m = \frac{6}{-3} = -2$

17. What must be true about the slopes of two perpendicular lines, neither of which is vertical?

$\frac{3}{5}$ $\quad -\frac{5}{3}$

a. The slopes are equal.
b. The slopes have product 1.
c. The slopes have product –1.
d. One of the slopes must be 0.

18. Line p contains points $A(-1, 4)$ and $B(3, -3)$. Line q is parallel to line p. Line r is perpendicular to line q. What is the slope of line r? Explain.



$m = -\frac{7}{4} \leftarrow p$

$m = -\frac{7}{4} \leftarrow q$

$m = \frac{4}{7} \leftarrow r$