Linear Functions Notes

ROC ⇒ 2 → $\frac{2}{3}$

Faster (steeper slope)

Properties of Slope:

Parallel Slopes: (//)	Perpendicular Slopes: (⊥)
same slope (never intersect)	opposite reciprocals (form rt angles)

1) $y = \frac{3}{4}x - 4$ // $m = 3/4$ ⊥ $m = -4/3$

2) $y = \frac{1}{2}x - 4$ // $m = 1/2$ ⊥ $m = -2$

3) $x = -4$ (what kind of line?) // m = und. ⊥ $m = 0$

Pt Slope Form: $y - y_1 = m(x - x_1)$

Give an equation in point-slope form that satisfies the given information.

1. Passes through (2, 3) and has slope of $-\frac{1}{2}$.

x_1 y_1

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

$y - 3 = -1/2x + 1 \Rightarrow y = -1/2x - 2$

2. Passes through (-1, 4) and m = 4.

x_1 y_1

$y - 4 = 4(x + 1)$ notice signs

$y = 4x + 8$

3. Passes through (0, 2) and has slope of -5/3.

$y - 2 = -5/3(x - 0)$

$y = -5/3x + 2$

4. Passes through (4, -2) and m = 0. what kind of line

$y + 2 = 0(x - 4)$

$y = -2$

Give the slope of each of the following lines. Name a point on each line.

7. $y + 2 = 2/3(x - 4)$

$m = 2/3$

pt = (4, -2)

(opposite signs)

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

$m = 1/2$

pt = (3, 3)

13. $y + 2 = 1/3(x + 1)$

Point (-1, -2) Slope 1/3

14. $y + 1 = -\frac{1}{2}(x - 3)$

Point (3, -1) Slope -1/2

Algebra 1 Name Key ID: 1

Assignment Graphing Day 2 Date_____ Period____

Determine the slope of the lines Parallel and Perpendicular to the following functions.

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

$\parallel = 3/4$

$\perp = -4/3$

2) $y = -x - 1$

$\parallel = -1$

$\perp = 1$

3) $y = x + 2$

$\parallel = 1$

$\perp = -1$

4) $y = 2x + 3$

$\parallel = 2$

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

Write the point slope form of the equation of the line through the given point with the given slope.

5) through: $(3, -3)$, slope $= -\frac{1}{2}$

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

6) through: $(4, 5)$, slope $= 1$

$y - 5 = 1(x - 4)$

7) through: $(5, -4)$, slope $= -\frac{8}{5}$

$y + 4 = -\frac{8}{5}(x - 5)$

8) through: $(-5, 4)$, slope $= -\frac{3}{5}$

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

Determine a point and the slope of the following linear functions.

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

$m = -3/4$

$pt = (-4, -1)$

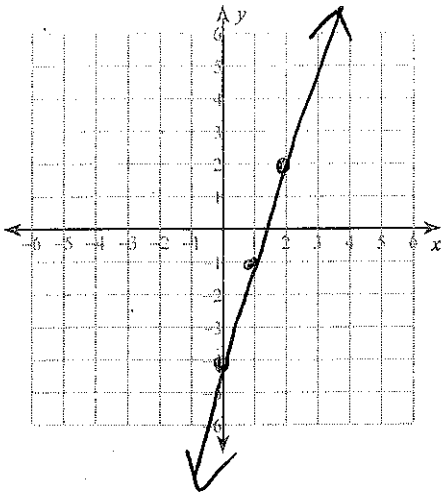
10) $y + 5 = -\frac{3}{4}(x - 4)$

$m = -3/4$

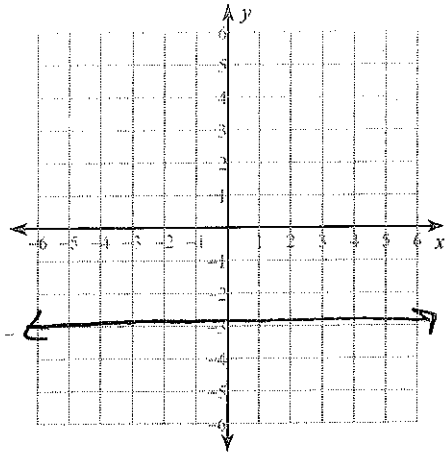
$pt = (4, -5)$

Sketch the graph of each line.

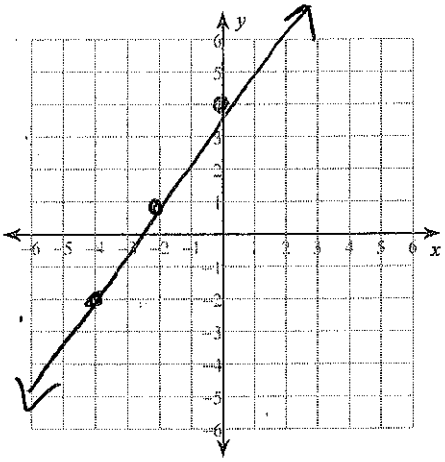
11) $y = 3x - 4$



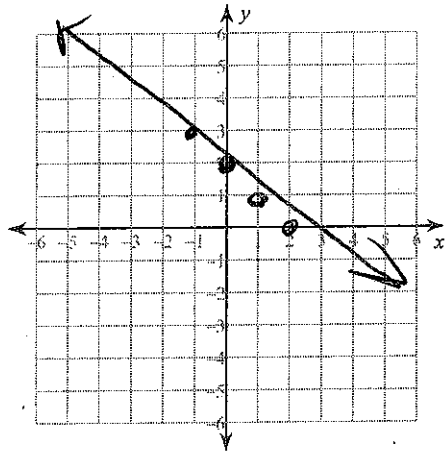
12) $y = -3$



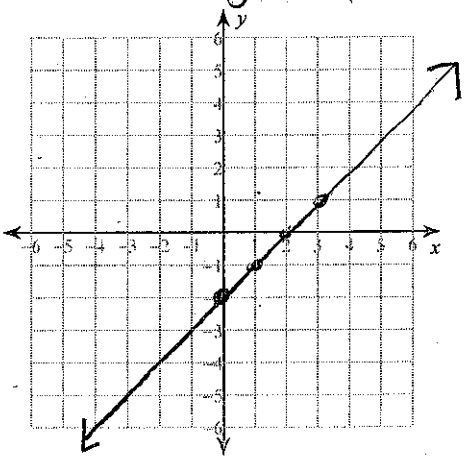
13) $y = \frac{3}{2}x + 4$



14) $y = -x + 2$



15) $x - y = 2$ $y = x - 2$



16) $4x + 5y = 20$ $\frac{5y}{5} = \frac{-4x}{5} + \frac{20}{5}$

$y = -\frac{4}{5}x + 4$