

Write the equation of each line:

1. passing through (-3,6) and (3,-2)

$$m = \frac{-8}{6} = -\frac{4}{3}$$

$$-2 = -\frac{4}{3} \cdot 3 + b$$

$$2 = b$$

$$\boxed{y = -\frac{4}{3}x + 2}$$

2. Passing through (-2,-5) and (6,-5)

$$\boxed{y = -5}$$

3. Passing through (1,-3) with x-intercept = -1

$$(-1, 0) \quad (1, -3) \quad m = -\frac{3}{2}$$

$$0 = -\frac{3}{2}(-1) + b$$

$$-\frac{3}{2} = b$$

$$\boxed{y = -\frac{3}{2}x - \frac{3}{2}}$$

4. With x-intercept = 4 and y-intercept = -2

$$(4, 0) \quad (0, -2)$$

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

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

5. Passing through (5, -9) and perpendicular to
- $x + 7y - 12 = 0$

$$7y = -x + 12$$

$$y = -\frac{1}{7}x + \frac{12}{7}$$

$$-9 = 7 \cdot 5 + b$$

$$-44 = b$$

$$\boxed{y = 7x - 44}$$

$$m = 7$$

6. Perpendicular to
- $3x - 2y - 4 = 0$
- and having the same y-intercept as the line

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

$$y = \frac{3}{2}x - 2$$

$$b = -2 \quad m = -\frac{2}{3}$$

$$\boxed{y = -\frac{2}{3}x - 2}$$

Find the average rate of change.

- 7.
- $f(x) = 3x$
- from
- $x_1 = 0$
- to
- $x_2 = 5$

$$f(0) = 0 \quad (0, 0) \quad (5, 15)$$

$$f(5) = 15$$

$$m = \frac{15}{5} = \boxed{3}$$

- 8.
- $f(x) = x^2 - 2x$
- from
- $x_1 = 3$
- to
- $x_2 = 6$

$$f(3) = 3 \quad (3, 3)$$

$$f(6) = 24 \quad (6, 24)$$

$$m = \frac{21}{3} = \boxed{7}$$

- 9.
- $f(x) = \sqrt{x}$
- from
- $x_1 = 4$
- to
- $x_2 = 9$

$$f(4) = 2 \quad (4, 2) \quad (9, 3)$$

$$f(9) = 3$$

$$\boxed{m = \frac{1}{5}}$$

10. Find the value of y if the line through the 2 points $(3,y)$ and $(1,4)$ has a slope of -3 .

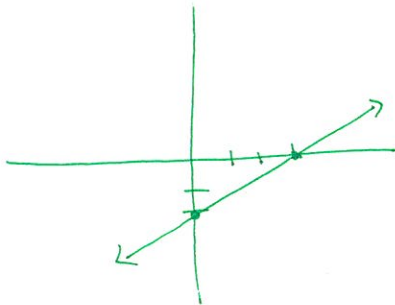
$$\frac{4-y}{1-3} = \frac{-3}{1}$$

$$4-y = 6$$

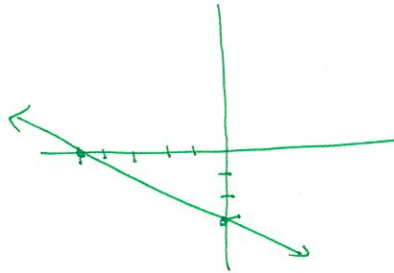
$$\boxed{y = -2}$$

Use intercepts to graph each line:

11. $6x-9y-18=0$ $6x-9y = 18$



12. $3x+5y+15=0$ $3x+5y = -15$



13. Which of the following is true?

a) A linear function with a nonnegative slope has a graph that rises from right to left. \longleftrightarrow or \updownarrow

b) Every line has an equation that can be expressed in slope-intercept form. $x=2$

c) The graph of the function $5x+6y=30$ is a line passing through the point $(6,0)$ with slope $-\frac{5}{6}$. $6y = -5x + 30$ $y = -\frac{5}{6}x + 5$

d) The graph of $x=7$ is the single point $(7,0)$.

