

Slopes:

Match each slope with a graph of a line.

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

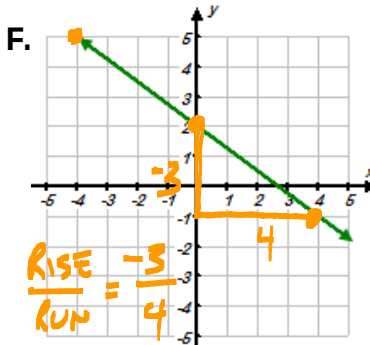
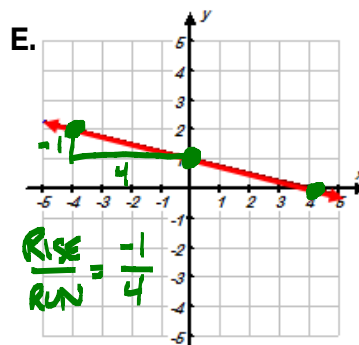
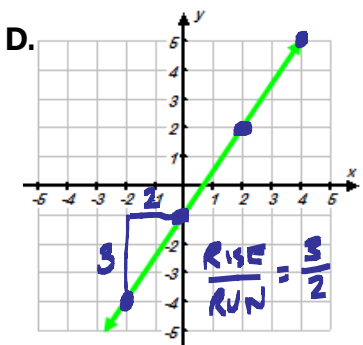
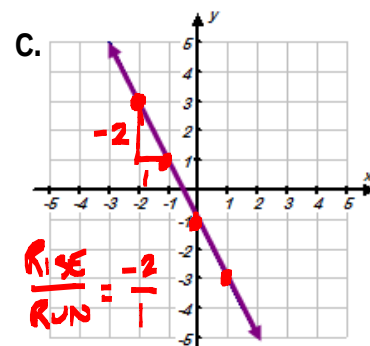
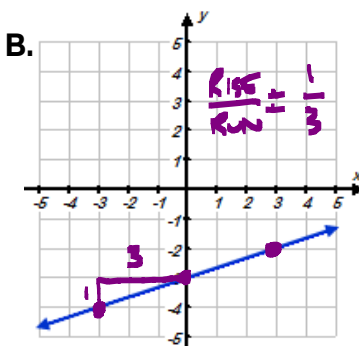
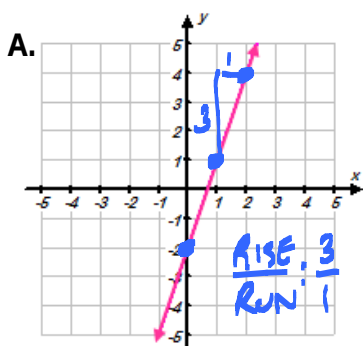
F 2. $m = -\frac{3}{4}$

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

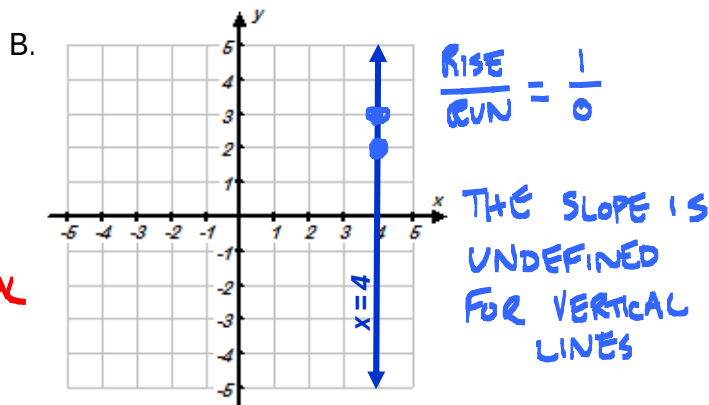
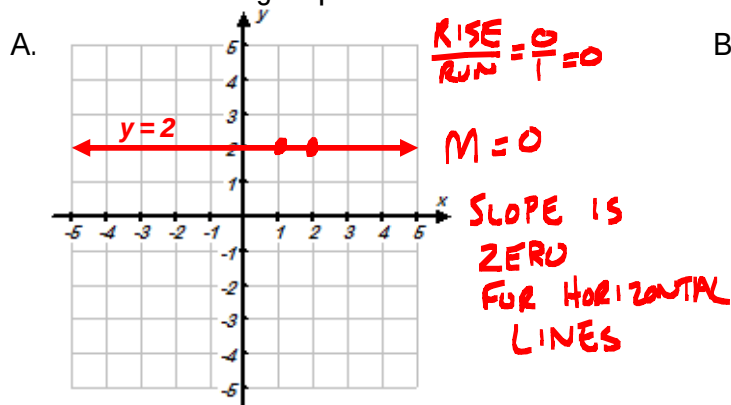
C 4. $m = -2$

D 5. $m = \frac{3}{2}$

A 6. $m = 3$



7. Describe the following slopes.



8. Find the slope of a line that passes through the given points.

A. $(-3, 2)$ and $(-1, -4)$
 $x_1 \ y_1 \quad x_2 \ y_2$

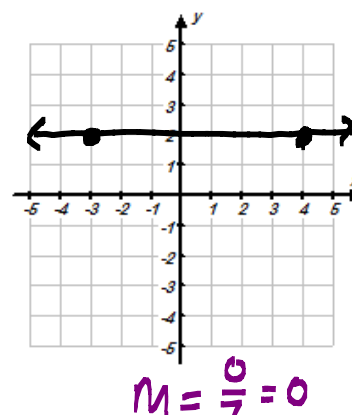
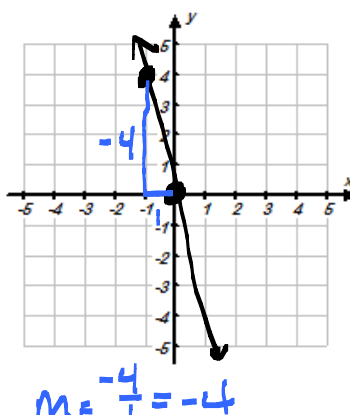
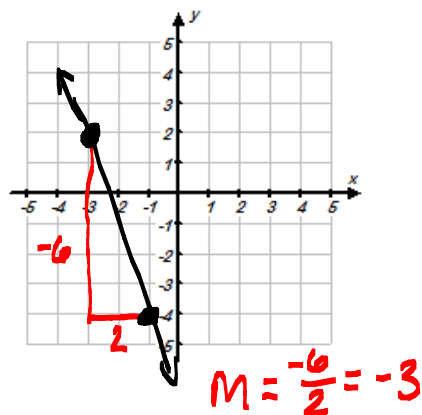
B. the origin and $(-1, 4)$
 $(0, 0) \quad x_2 \ y_2$
 $x_1 \ y_1$

C. $(4, 2)$ and $(-3, 2)$
 $x_1 \ y_1 \quad x_2 \ y_2$

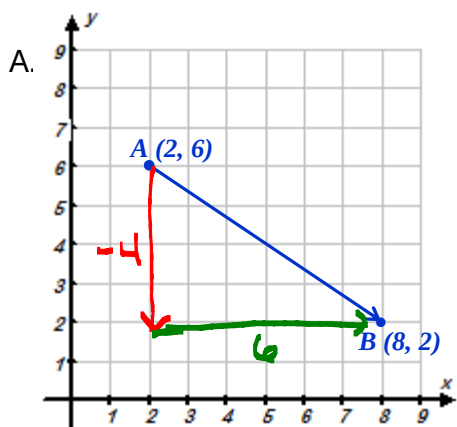
$$M = \frac{y_2 - y_1}{x_2 - x_1} = \frac{-4 - 2}{-1 - (-3)} = \frac{-6}{2} = -3$$

$$M = \frac{y_2 - y_1}{x_2 - x_1} = \frac{4 - 0}{-1 - 0} = \frac{4}{-1} = -4$$

$$M = \frac{y_2 - y_1}{x_2 - x_1} = \frac{2 - 2}{-3 - 4} = \frac{0}{-7} = 0$$

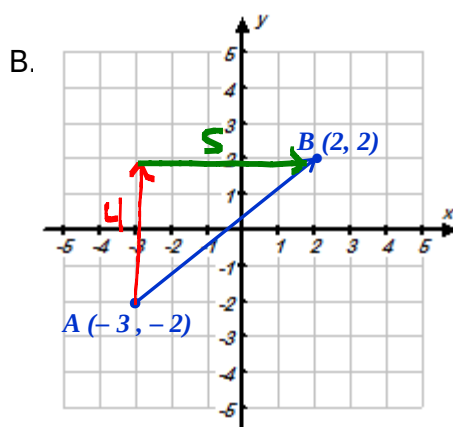


9. A directed line segment is a line segment from one point to another point in the coordinate plane. The segment is described by an ordered pair of the directional change of x followed by the directional change of y . Find the components of $\overrightarrow{AB}$ in each problem below.



$$\langle 6, -4 \rangle$$

$$\begin{aligned} x_2 - x_1 &= 8 - 2 = 6 \\ y_2 - y_1 &= 2 - 6 = -4 \end{aligned}$$



$$\langle 5, 4 \rangle$$

$$\begin{aligned} x_2 - x_1 &= 2 - (-3) = 5 \\ y_2 - y_1 &= 2 - (-2) = 4 \end{aligned}$$

- C. Point A $(-1, 3)$ & Point B $(5, -2)$

$$\begin{aligned} x_2 - x_1 &= 5 - (-1) = 6 \\ y_2 - y_1 &= -2 - 3 = -5 \end{aligned}$$

$$\langle 6, -5 \rangle$$

10. Determine if the given point lies on the given line.

A. Line m : $y = \frac{1}{2}x - 2$

Point A: $(6, 1)$

$$\begin{aligned} (1) &= \frac{1}{2}(6) - 2 \\ 1 &= 3 - 2 \\ 1 &= 1 \quad \checkmark \end{aligned}$$

YES,
POINT A
IS ON
LINE m

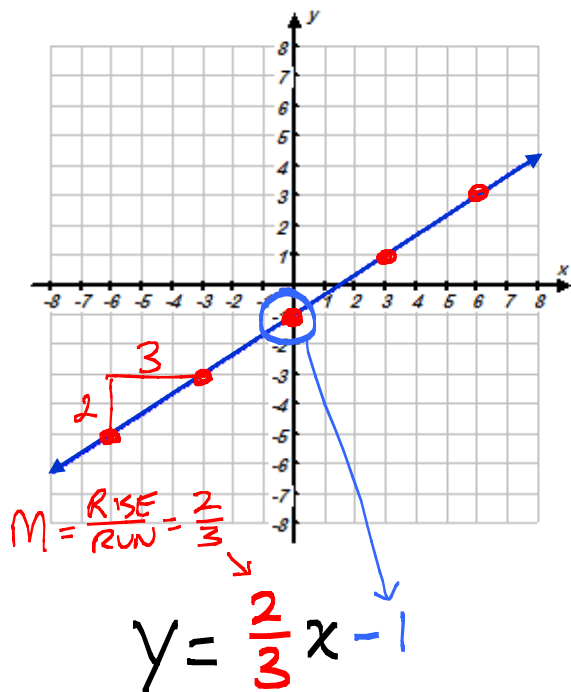
B. Line n : $3y = -2x + 1$

Point B: $(5, 3)$

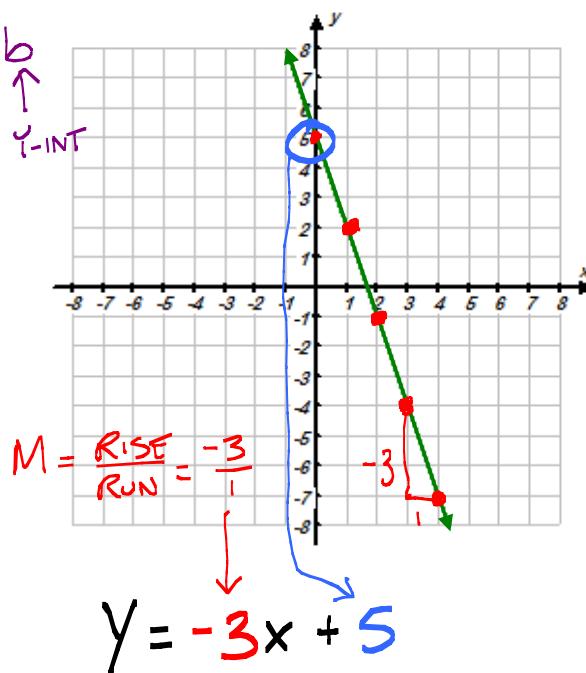
$$\begin{aligned} 3(3) &= -2(5) + 1 \\ 9 &= -10 + 1 \\ 9 &= -9 \quad \times \end{aligned}$$

NO, POINT B
IS NOT ON
LINE n .

11. Determine the equation of the graphed lines:



$y = mx + b$
↑ ↑
SLOPE Y-INT
 $\frac{\text{RISE}}{\text{RUN}}$



$$y = mx + b$$

↑ ↑
SLOPE Y-INTERCEPT

12. Determine the **slope** and **y-intercept** of each of the linear equations below.

A. $y = \frac{2}{5}x - 3$

SLOPE = $\frac{2}{5}$

Y-INTERCEPT = -3

B. $3y - 8 = 2x$

$$\frac{3y}{3} = \frac{2x+8}{3}$$

$$y = \frac{2}{3}x + \frac{8}{3}$$

SLOPE = $\frac{2}{3}$

Y-INT = $\frac{8}{3}$

C. $y = 5$

$$y = 0x + 5$$

SLOPE = 0

Y-INT = 5

D. $x = 3$

VERTICAL LINE

SLOPE IS UNDEFINED

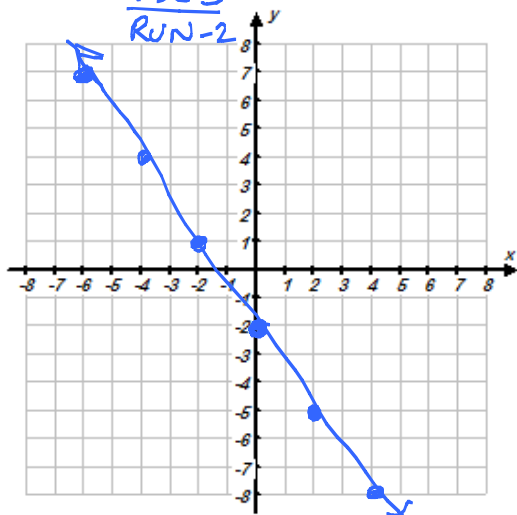
NO Y-INTERCEPT

13. Graph the following lines:

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

SLOPE: RISE -3
RUN 2
OR
RISE 3
RUN -2

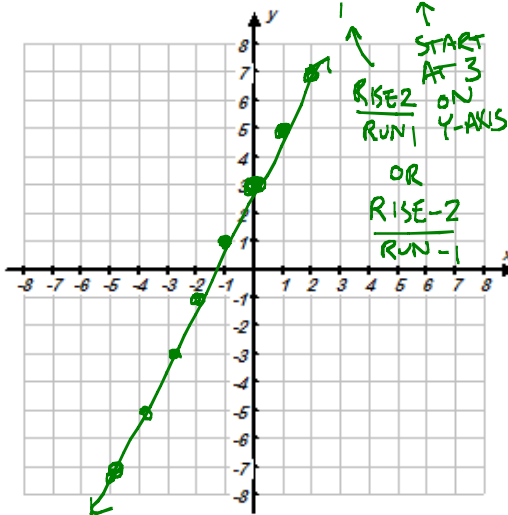
START AT
-2 ON
Y-AXIS



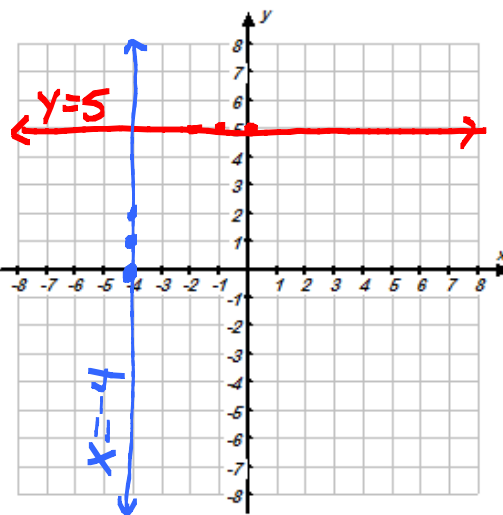
B. $2y - 4x = 6$

$$\frac{2y}{2} = \frac{4x+6}{2}$$

$$y = 2x + 3$$



C. $y = 5$ and $x = -4$



14. Given each of the following parameters, determine an equation of each line in slope intercept form.

A. Find the equation of a line with a slope of $\frac{1}{2}$ and y-intercept of 5

$$y = mx + b$$

SLOPE $\frac{1}{2}$

Y-INTERCEPT 5

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

B. Find the equation of a line with a slope of $\frac{2}{3}$ and passing through the point $(6, -4)$

$$y = mx + b$$

$$y = \frac{2}{3}x + b$$

TEMPORARILY PLUG IN $(6, -4)$

$$(-4) = \frac{2}{3}(6) + b$$

$$-4 = 4 + b$$

$$-8 = b$$

$$y = \frac{2}{3}x - 8$$

C. Find the equation of a line passes through the points $(4, 2)$ and $(-8, 5)$

$$M = \frac{y_2 - y_1}{x_2 - x_1} = \frac{5 - 2}{-8 - 4} = \frac{3}{-12} = -\frac{1}{4}$$

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

TEMPORARILY PLUG IN $(4, 2)$

$$(2) = -\frac{1}{4}(4) + b$$

$$2 = -1 + b$$

$$3 = b$$

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

