

Review of Linear Equations With Emphasis on Slope

Name: Keyf
Date:

Period:
A#

1. Which *one* of the following does *not* describe the slope of a line?

A. $\frac{\text{rise}}{\text{run}}$

B. $\frac{\text{vertical change}}{\text{horizontal change}}$

C. $\frac{\text{difference between } y\text{-coordinates}}{\text{difference between } x\text{-coordinates}}$

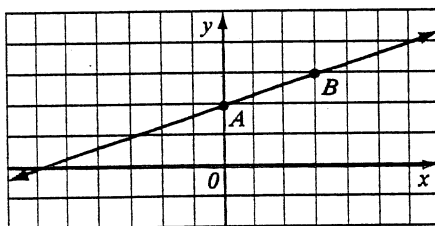
D. $\frac{y_2 - y_1}{x_2 - x_1} \quad (x_1 \neq x_2)$

E. $\frac{x_2 - x_1}{y_2 - y_1} \quad (y_1 \neq y_2)$

2. Classify each of the following as true or false.

- a. The slope of a line is constant. True
 b. The slope of every vertical line is 0. False. It is undefined
 c. Horizontal lines have no slope. False. It is zero.
 d. Points that lie on the same line are collinear. True
 e. The slope of $y = 3x - 2$ is 3. True.

3. What is the slope of the line passing through A and B ?



$\frac{1}{3}$ count it

4. Find the slope of the line through the points $(3, -4)$ and $(-5, 2)$.

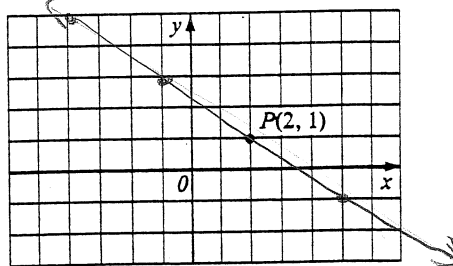
$$\frac{-4-2}{3+5} = \frac{-6}{8} = -\frac{3}{4}$$

5. Find the slope of the line whose equation is $2x - 3y = 6$.

$$2x - 6 = 3y$$

$$\frac{2}{3}$$

6. Draw a line through $P(2, 1)$ with slope $-\frac{2}{3}$. Use the given diagram.



7. Classify each of the following as true or false.

a. The graph of $y = 3x$ passes through the origin. True y -intercept is zero.

b. $y = \frac{3}{4}x + 2$ and $y = \frac{3}{4}x - 3$ have different slopes. False Both are $\frac{3}{4}$.

c. The standard form of $y = -\frac{2}{3}x + 1$ is $2x + 3y = 1$. False. The one should be a three

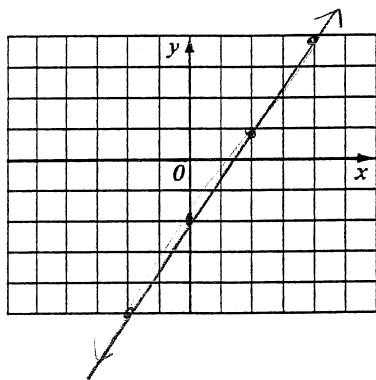
8. A line has the equation $3x - 7y = 14$.

a. Write the equation in slope-intercept form. $\frac{3}{7}x - 2 = y$

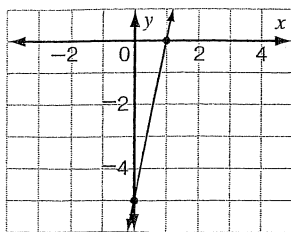
b. What is the slope of the line? $\frac{3}{7}$

c. What is the y -intercept of the line? -2

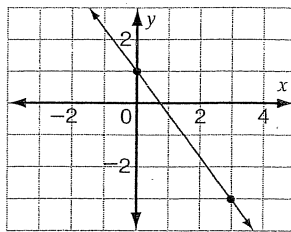
9. Draw a line with slope $\frac{3}{2}$ and y -intercept -2 .



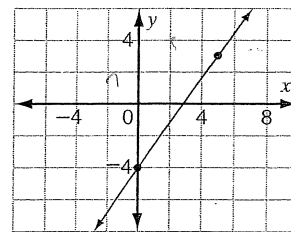
Write the slope-intercept form of the equation of the line shown.



$$y = 5x - 5$$



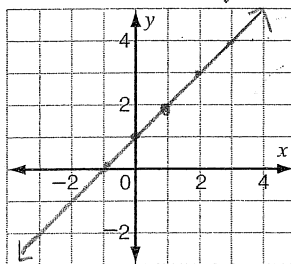
$$y = -\frac{4}{3}x + 1$$



$$y = \frac{7}{5}x - 4$$

Graph each equation.

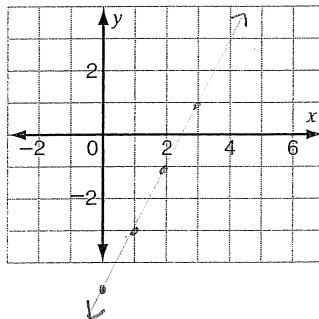
$$y - 2 = x - 1 \quad y = x + 1$$



$$y = 2x - 5$$

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

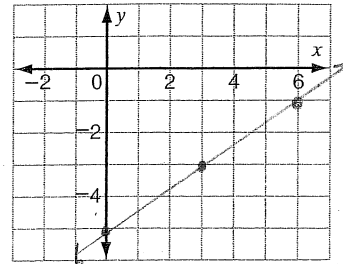
$$y + 3 = 2(x - 1)$$



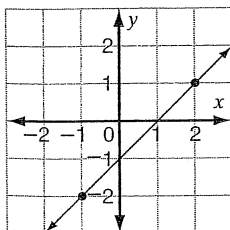
$$y = \frac{2}{3}x - 5$$

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

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

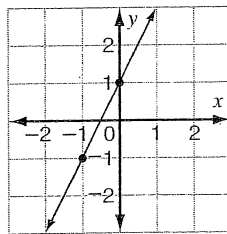


Given the graph, write the equation of the line in standard form.



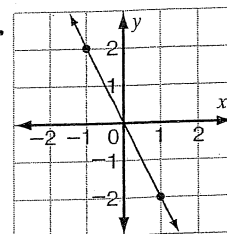
$$y = x - 1$$

$$y - x = -1$$



$$y = 2x + 1$$

$$y - 2x = 1$$



$$y = -2x \quad y + 2x = 0$$

Find the equation of the line specified.

parallel to $3x + 2y = 8$
with a y-intercept of -6

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

$$y = -\frac{3}{2}x - 6$$

perpendicular to $2y = 16$ and
passing through $(4, -9)$

$$x = 4$$

parallel to $9x + 5y = 2$
with a y-intercept of -2

$$y = -\frac{9}{5}x + \frac{2}{5}$$

$$y = -\frac{9}{5}x - 2$$

perpendicular to $3y = 24$
and passing through $(-7, 11)$

$$y = 8$$

$$x = -7$$

perpendicular to $-5y = 2x + 1$
with y-intercept $-\frac{19}{5}$

$$y = \frac{5}{2}x - \frac{19}{5}$$

Write the equation of the line in standard form.

$m = 2$ with $(3, 7)$

$$7 = 2(3) + b$$

$$1 = b$$

$$y = 2x + 1$$

$$2x - y = 1$$

2. $m = 0$ with $(2, 9)$

$$y = 9$$

3. $m = 6$ with $(2, 2)$

$$2 = 6(2) + b$$

$$-10 = b$$

$$y = 6x - 10$$

$$6x - y = 10$$

Write each equation in the indicated form.

$8x + 2y = 15$

$$2y = -8x + 15$$

$$y = -4x + \frac{15}{2}$$

$$y = -4x + \frac{15}{2}$$

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

standard form

$$y + 3 = -\frac{4}{5}x + \frac{16}{5}$$

$$5y + 15 = -4x + 16$$

$$5y + 4x = 1$$

$$4x + 5y = 1$$

$9x + 3y = 7$

slope-intercept form

$$3y = -9x + 7$$

$$y = -3x + \frac{7}{3}$$

$y - 5.6 = -2(x - 4.7)$

standard form

$$y - 5.6 = -2x + 9.4$$

$$y + 2x = 15$$

$$2x + y = 15$$

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

standard form

$$y + 2 = -\frac{3}{4}x + \frac{9}{4}$$

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

$$4y + 3x = 1$$

$y - 7.9 = -3(x - 1.7)$

standard form

$$y - 7.9 = -3x + 5.1$$

$$y + 3x = 13$$

$$3x + y = 13$$

Tell whether each pair of lines is parallel, perpendicular, or neither.

$y = \frac{7}{3}x - 11$ and $3x + 7y = 14$

$$y = -\frac{3}{7}x$$

perpendicular

$6x - 5y = 24$ and $y = -\frac{5}{6}x - 2$

$$6x - 24 = 5y$$

$$y = \frac{6}{5}x$$

perpendicular

Line 1 passes through $(2, 4)$ and $(7, -8)$.
Line 2 passes through $(-4, -11)$ and $(1, -23)$.

$$\frac{4+8}{2-7} = \frac{12}{-5}$$

$$\frac{-11+23}{-4-1} = \frac{12}{-5}$$

parallel

Line 1 passes through $(-7, 12)$ and $(-3, 21)$.
Line 2 passes through $(6, -2)$ and $(10, 7)$.

$$\frac{12-21}{-7-3} = -\frac{9}{-4}$$

$$\frac{21-7}{6-10} = -\frac{14}{-4}$$

parallel

Find the equation of the line specified.

perpendicular to $2x + y = -4$
and passing through $(3, 5)$

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

$$5 = \frac{1}{2}(3) + b$$

$$\frac{7}{2} = b$$

$$y = \frac{1}{2}x + \frac{7}{2}$$

perpendicular to $3x + y = -7$
and passing through $(1, 8)$

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

$$8 = \frac{1}{3} + b$$

$$7\frac{2}{3} = b$$

$$y = \frac{1}{3}x + 7\frac{2}{3}$$

parallel to $-3y = 8x + 7$
and passing through $(-1, -2)$

$$y = -\frac{8}{3}x + b$$

$$-2 = -\frac{8}{3}(-1) + b$$

$$-\frac{6}{3} = \frac{8}{3} + b$$

$$y = -\frac{14}{3}x - \frac{14}{3}$$
