

Name: Key

Unit 4 Day 19 homework: Unit review

Slope- Intercept Form

$$y = mx + b$$

Point- Slope Form

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

Standard Form

$$Ax + By = C$$

Using the following information, write the equation in slope-intercept form.

1. $m = -4$ and $(0, -7)$

$$y = -4x - 7$$

2. $(6, 6)$ and $(8, -10)$

$$m = \frac{-10 - 6}{8 - 6} = \frac{-16}{2} = -8$$

$$y = -8x + b$$

$$6 = -8(6) + b$$

$$6 = -48 + b$$

$$54 = b$$

$$y = -8x + 54$$

Re-Write the following equations in slope-intercept form.

3. $-4x + 6y = 12$

$$\frac{6y}{6} = \frac{4x + 12}{6}$$

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

4. $-8x + 10y = -5$

$$\frac{10y}{10} = \frac{8x - 5}{10}$$

$$y = \frac{4x}{5} - \frac{1}{2}$$

Write the following equations in point-slope form.

5. Slope of $-\frac{3}{8}$ point $(-5, 8)$

$$y - 8 = -\frac{3}{8}(x + 5)$$

6. $(-10, 2)$ and $(-3, 5)$

$$m = \frac{5 - 2}{-3 - (-10)} = \frac{3}{7}$$

$$y - 5 = \frac{3}{7}(x + 3)$$

$$y - 2 = \frac{3}{7}(x + 10)$$

Identify the point and slope of the following equations.

7. $y - 11 = -3(x + 4)$

$m = -3$
point $(-4, 11)$

8. $y + 4 = -1/2(x - 4)$

$m = -\frac{1}{2}$
point: $(4, -4)$

Use the following information to write equations of lines in Standard Form.

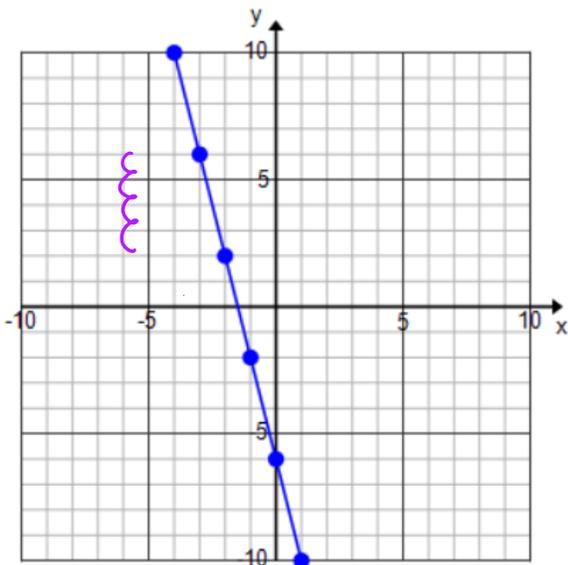
8. $y = -6(x - 4)$

$y = -6x + 24$
 $6x + y = 24$

9. $(-5, 8)$ and $(-3, 2)$

$m = \frac{2-8}{-3-(-5)} = \frac{-6}{2} = -3$
 $y - 2 = -3(x + 3)$
 $y - 2 = -3x - 9$
 $3x + y = -7$

10. Given the graph, write the equation of the line in the different forms.



Slope = -4

y-intercept = $(0, -6)$

Point on Graph = $(-1, -2)$ (varies)

Slope-intercept Form = $y = -4x - 6$

Point-Slope Form = $y + 2 = -4(x + 1)$

Standard Form = $4x + y = -6$

11. Find the slopes of the following lines and state if they are parallel, perpendicular, or neither.

$-3x + 4y = 12$

$4y = \frac{3x+12}{4}$

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

$-3x - 4y = 12$

$-4y = \frac{3x+12}{-4}$

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

neither

12. Write an equation of a line in slope-intercept form that is perpendicular to the equation $y = -\frac{1}{8}x - 4$ and passes through the point $(-5, 6)$.

$$m = 8$$

$$\begin{aligned} y &= 8x + b \\ b &= 8(-5) + b \\ b &= -40 + b \\ 4b &= b \end{aligned}$$

$$y = 8x + 46$$

13. Write an equation of a line in point-slope form that is parallel to the equation $y = -4x + 5$ and has a y-intercept of $(0, 5)$.

$$m = -4$$

$$y = -4x + 5$$

14. Luke decides to work on his push-ups. Right now, he can do 35 push-ups. Every day, he can do 2 more push-ups.

- a. Define your variables.

$$\begin{aligned} x &= \text{day} \\ y &= \text{push-ups} \end{aligned}$$

- b. Write an equation in slope-intercept form.

$$y = 2x + 35$$

- c. How many push-ups can Luke do in sixty days?

$$\begin{aligned} y &= 2(60) + 35 \\ &= 120 + 35 \\ &= 155 \text{ push-ups} \end{aligned}$$

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15. One the 1st day, there is 2 inches of snow on the ground. On the 6th day, there is 12 inches of snow.

- a. Define your variables.

$$\begin{aligned} x &= \text{days} \\ y &= \text{snow(in)} \end{aligned}$$

- b. Write an equation in point-slope form.

$$\begin{aligned} (1, 2) \\ (6, 12) \end{aligned}$$

$$m = \frac{12-2}{6-1} = \frac{10}{5} = 2$$

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

- c. How many inches of snow will there be in 20 days?

★ First put into $y = mx + b$

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

$$y - 2 = 2x - 2$$

$$y = 2x + 0$$

$$x = 20$$

$$y = 2(20)$$

$$y = 40 \text{ inches in 20 days}$$