

Warm Up

2/27

Take out yesterday's work.

Questions, comments?

	Equation	x-intercept	y-intercept	Slope
9.	$4x - y = 2$	$(\frac{1}{2}, 0)$	-2	4
10.	$3x + y = 5$	$(\frac{5}{3}, 0)$	$(0, 5)$	-3
11.	$x - y = 7$	$(7, 0)$	$(0, -7)$	1
12.	$5x - y = -3$	$(-\frac{3}{5}, 0)$	$(0, 3)$	5
13.	$8x + y = -12$	$(-\frac{3}{2}, 0)$	$(0, -12)$	-8
14.	$9x + y = 5$	$(\frac{5}{9}, 0)$	$(0, 5)$	-9
15.	$y = -2x + 5$	$(\frac{5}{2}, 0)$	$(0, 5)$	-2
16.	$y = -2x - 3$	$(-\frac{3}{2}, 0)$	$(0, -3)$	-2
17.	$y = x - 4$	$(4, 0)$	$(0, -4)$	1
18.	$y = (-\frac{3}{4})x + 3$	$(4, 0)$	$(0, 3)$	$-\frac{3}{4}$
19.	$y = (\frac{7}{2})x - 8$	$(\frac{16}{7}, 0)$	$(0, -8)$	$\frac{7}{2}$
20.	$y = 0.2x - 11$	$(55, 0)$	$(0, -11)$	0.2

Homework Questions?

Page 14, #'s 9-20

Write the equation in equivalent $Ax + By = C$ form. Then, identify the x -intercept, y -intercept, and slope.

9. $y = 4x - 2$

10. $y = -3x + 5$

11. $y = x - 7$

$$\begin{array}{r} \cdot x \quad \cdot x \\ \hline -1 [-x + y = -7] \\ x - y = 7 \end{array}$$

12. $y = 5x + 3$

13. $y = -8x - 12$

14. $y = -9x + 5$

For Exercises 15–20, write the equation in $y = mx + b$ form. Identify the x -intercept, y -intercept, and slope.

15. $-2x - y = -5$

16. $6x + 3y = -9$

17. $x - y = 4$

18. $3x + 4y = 12$

19. $-7x + 2y = -16$

20. $x - 5y = 55$

20

$$\begin{array}{r} x - 5y = 55 \\ -x \qquad \qquad -x \\ \hline -5y = -x + 55 \\ \frac{-5y}{-5} = \frac{-x + 55}{-5} \\ y = \frac{1}{5}x - 11 \end{array}$$

y -int: $(0, -11)$

x -int: $x - 5y = 55$
 $x - 5(0) = 55$
 $x = 55$

$(55, 0)$

Vertical Non Permanent Surfaces

$$y = \frac{1}{3}x - 8$$

Find the slope, y-intercept, and x-intercept

Develop a protocol for doing this type of problem.

- If in slope-intercept form.

$$y = mx + b$$

↑ slope ↓ y-int

$$y = \frac{1}{3}x - 8$$

Slope = $\frac{1}{3}$
y-int: (0, -8)

we have found slope: y-int

- How to find x-int?

$$y = \frac{1}{3}x - 8$$

substitute 0 in for y

$$0 = \frac{1}{3}x - 8$$
$$\begin{array}{r} +8 \quad +8 \\ \hline 8 = \frac{1}{3}x \end{array} \longrightarrow 8 = \frac{1}{3}x$$
$$\frac{8}{\frac{1}{3}} = \frac{\frac{1}{3}x}{\frac{1}{3}}$$
$$\frac{8}{\frac{1}{3}} = x$$
$$8 \div \frac{1}{3} = x$$
$$8 \cdot \frac{3}{1} = x$$
$$24 = x$$
$$(3)8 = \frac{1}{3}x \left(\frac{3}{1}\right)$$
$$24 = x$$

When you multiply a number by its reciprocal, the product = 1

$$\text{reciprocal of } \frac{2}{5} \text{ is } \frac{5}{2} \quad \left(\frac{2}{5}\right)\left(\frac{5}{2}\right) = 1$$

$$\left(\frac{1}{3}\right)\left(\frac{3}{1}\right) = 1$$

$$\left(\frac{7}{6}\right)\frac{6}{7}x = \frac{2}{1}\left(\frac{1}{6}\right)$$
$$x = \frac{2}{3}$$

Vertical Non Permanent Surfaces

$$5x + 4y = 24$$

Find the slope, y-intercept, and x-intercept

Develop a protocol for doing this type of problem.

$$5x + 4y = 24 \quad \begin{array}{l} \swarrow 0 \\ \frac{5x}{5} = \frac{24}{5} \\ x = \frac{24}{5} \end{array}$$

1. Rearrange eq into slope-int form

$$\begin{array}{r} 5x + 4y = 24 \\ -5x \quad -5x \\ \hline 4y = -5x + 24 \\ \frac{4y}{4} = \frac{-5x}{4} + \frac{24}{4} \end{array} \quad \begin{array}{l} \text{slope: } -\frac{5}{4} \\ \text{y-int: } (0, 6) \end{array}$$
$$y = -\frac{5}{4}x + 6$$

2. Find x-intercept by substituting 0 in for y

$$\begin{array}{l} y = -\frac{5}{4}x + 6 \\ 0 = -\frac{5}{4}x + 6 \\ \left(\frac{4}{5}\right) \frac{5x}{4} = 6 \left(\frac{4}{5}\right) \\ x = \frac{24}{5} \end{array}$$

How about using Standard Form (could be easier!)

$$5x + 4y = 24$$

$$5x + 4(0) = 24$$

$$\begin{array}{l} 5x = 24 \\ \frac{5x}{5} = \frac{24}{5} \\ x = \frac{24}{5} \end{array}$$

Homework

Make sure Page 14, #'s 9-20 is complete, and correct.