Warm Up

Write the following equation in slope-intercept form.

$$6x - 4y = 15$$

$$-6x \qquad -6x$$

$$\frac{-4y}{-4} = \frac{-6x}{-4} + \frac{15}{-4}$$

$$y = \frac{6}{4}x - \frac{15}{4}$$

$$y = \frac{3}{2}x - \frac{15}{4}$$

Kuta Software - Infinite Algebra 1

Writing Linear Equations

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

1) $3x - 2y = -16$

$-3x \quad -3x$

$\frac{-2y}{-2} = \frac{-3x}{-2} - \frac{16}{-2}$

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

2) $13x - 11y = -12$

$-13x \quad -13x$

$\frac{-11y}{-11} = \frac{-13x}{-11} - \frac{12}{-11}$

$y = \frac{13}{11}x + \frac{12}{11}$

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

$-9x \quad -9x$

$\frac{-7y}{-7} = \frac{-9x}{-7} - \frac{7}{-7}$

$y = \frac{9}{7}x + 1$

4) $x - 3y = 6$

$-x \quad -x$

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

$y = \frac{1}{3}x - 2$

5) $6x + 5y = -15$

$-6x \quad -6x$

$\frac{5y}{5} = \frac{-6x}{5} - \frac{15}{5}$

$y = -\frac{6}{5}x - 3$

6) $4x - y = 1$

$-4x \quad -4x$

$(-1)[-y = -4x + 1]$

$y = 4x - 1$

7) $11x - 4y = 32$

$-11x \quad -11x$

$\frac{-4y}{-4} = \frac{-11x}{-4} + \frac{32}{-4}$

$y = \frac{11}{4}x - 8$

8) $11x - 8y = -48$

$-11x \quad -11x$

$\frac{-8y}{-8} = \frac{-11x}{-8} - \frac{48}{-8}$

$y = \frac{11}{8}x + 6$

Mixed Equations

Name: _____ Date: _____

Solve the equations. Complete ○'s first, □'s second, and △'s last.

(1) $-45 = 3(2x - 3)$

$-45 = 6x - 9$
$+9 \quad +9$
$\frac{-36}{6} = \frac{6x}{6}$
$-6 = x$

(2) $-3(3x - 4) = 57$

$-9x + 12 = 57$
$-12 \quad -12$
$\frac{-9x}{-9} = \frac{45}{-9}$
$x = -5$

(3) $17 = 7x - 2(3x - 4)$

$17 = 7x - 6x + 8$
$17 = x + 8$
$-8 \quad -8$
$9 = x$

(4) $14 - 2x = 3x - 6$

$+2x \quad +2x$
$14 = 5x - 6$
$+6 \quad +6$
$\frac{20}{5} = \frac{5x}{5}$
$4 = x$

(5) $-10 + x = 8 - 2x$

$+2x \quad +2x$
$-10 + 3x = 8$
$+10 \quad +10$
$\frac{3x}{3} = \frac{18}{3}$
$x = 6$

(6) $4 - 3x = -2x - 3$

$+3x \quad +3x$
$4 = x - 3$
$+3 \quad +3$
$7 = x$

(7) $-6 = \frac{-5x - 2}{2}$

$-12 = -5x - 2$
$+2 \quad +2$
$\frac{-10}{-5} = \frac{-5x}{-5}$
$2 = x$

(8) $\frac{4x - 2}{3} = 6$

$4x - 2 = 18$
$+2 \quad +2$
$\frac{4x}{4} = \frac{20}{4}$
$x = 5$

(9) $-2x + 3(x + 4) = 4$

$-2x + 3x + 12 = 4$
$x + 12 = 4$
$-12 \quad -12$
$x = -8$

(10) $39 = -5x - 2(-6x - 2)$

$39 = -5x + 12x + 4$
$39 = 7x + 4$
$-4 \quad -4$
$\frac{35}{7} = \frac{7x}{7}$
$5 = x$

#7 $-6 = \frac{-5x-2}{2}$

(2) $\frac{\text{☺}}{2} = \text{☺}$

$-6 = \frac{-5}{2}x - 1$

$+1 \qquad +1$

$(2)\,-5 = \frac{-5}{2}x\,(\frac{2}{1})$

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

$2 = x$

$\frac{2}{1}\left[-6 = \frac{-5x-2}{2}\right]$

$-12 = -5x - 2$

$+2 \qquad +2$

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

$2 = x$

#8 $3\left[\frac{4x-2}{3} = \frac{6}{1}\right]$

$4x - 2 = 18$

$+2 \quad +2$

$\frac{4x}{4} = \frac{20}{4}$

$x = 5$

How to find slope, y-intercept and x-intercept from an equation.

$$3x - 4y = 12$$

$-3x \quad -3x$

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

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

$\frac{3}{4}$ slope; $(0, -3)$ y-int

$$3x - 4y = 12$$

x-intercept? value of x when $y = 0$

$$3x - 4(0) = 12$$

$$\frac{3x}{3} = \frac{12}{3}$$

$$x = 4$$

$(4, 0)$ x-int

y-intercept? value of y when $x = 0$

$$3(0) - 4y = 12$$

$$\frac{-4y}{-4} = \frac{12}{-4}$$

$$y = -3$$

$(0, -3)$

You can also find the slope by calculating the slope between the intercepts!

$+4 <$ $(0, -3)$ $(4, 0)$ $> +3$ $\quad \frac{\Delta y}{\Delta x} = \frac{3}{4}$

Today's assignment:

Classwork: Page 14, #'s 9-19 odd

Homework: Page 14, #'s 10-20 even

Overall: 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.** $y = x - 7$

12. $y = 5x + 3$ **13.** $y = -8x - 12$ **14.** $y = -9x + 5$

Standard Form Refresher:

Ax + By = C

- **A, B,** and **C** are integers
- **A** must be positive

#9 $y = 4x - 2$ slope-intercept form

$+2 \quad +2$

$y + 2 = 4x$

$-y \quad -y$

$2 = 4x - y$

$4x - y = 2$ standard form

slope:

y-int:

x-int:

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. $x - 5y = 55$

Homework

Finish classwork