Name _____

Period _____ Date 10/ /20

standard form

$Ax + By = C$

Find the x and y intercept and the slope of the equation.

1) $x - y = 12$

$x - (0) = 12$

$x = 12$

$(12, 0)$

$x - y = 12$

$(0) - y = 12$

$-y = 12$

$\frac{-y}{-1} = \frac{12}{-1}$

$y = -12$

$(0, -12)$

find the slope

$x - y = 12$ standard form

$-x \quad -x$

$-y = -x + 12$

$\frac{-y}{-1} = \frac{-x}{-1} + \frac{12}{-1}$

$y = x - 12$ → slope intercept form $y = mx + b$

$m = 1$

2) $3x + 2y = 12$

$3x + 2(0) = 12$

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

$x = 4$ $(4, 0)$

$3x + 2y = 12$

$3(0) + 2y = 12$

$\frac{2y}{2} = \frac{12}{2}$

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

6) ~~$-7x + 3y = 42$~~ ~~$-7x + 3y = 42$~~ standard

slope

$3x + 2y = 12$

$-3x \quad -3x$

$\frac{2y}{2} = \frac{-3x + 12}{2}$

$y = \frac{-3}{2}x + 6$ slope intercept form.

$m = -\frac{3}{2}$

3) $-7x + 3y = 42$

$-7x + 3(0) = 42$

$\frac{-7x}{-7} = \frac{42}{-7}$

$x = -6$

$-7x + 3y = 42$

$-7(0) + 3y = 42$

$\frac{3y}{3} = \frac{42}{3}$

$y = +14$

$3\overline{)42}$ 14, 3, 12

slope

$-7x + 3y = 42$

$+7x \quad +7x$

$\frac{3y}{3} = \frac{7x + 42}{3}$

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

b = y intercept

slope $\frac{7}{3}$

4) $8x - 6y = 24$

$8x - 6(0) = 24$

$\frac{8x}{8} = \frac{24}{8}$

$x = 3$

$8x - 6y = 24$

$8(0) - 6y = 24$

$\frac{-6y}{-6} = \frac{24}{-6}$

$y = -4$

slope $8x - 6y = 24$

$-8x \quad -8x$

$-6y = -8x + 24$

$\frac{-6y}{-6} = \frac{-8x}{-6} + \frac{24}{-6}$

$y = \frac{8}{6}x - 4$

slope $\frac{8 \div 2}{6 \div 2} = \frac{4}{3}$

1. move the x to the other side.
2. divide by the number infront of y.

$b = -4$

5) $5x - 4y = -40$

$5x - 4(0) = -40$

$\frac{5x}{5} = \frac{-40}{5}$

$x = -8$

$5x - 4y = -40$

$5(0) - 4y = -40$

$\frac{-4y}{-4} = \frac{-40}{-4}$

$y = 10$

$b = 10$

slope $5x - 4y = -40$

$-5x \quad -5x$

$-4y = -5x - 40$

$\frac{-4y}{-4} = \frac{-5x}{-4} - \frac{40}{-4}$

$y = \frac{5}{4}x - 10$

$m = \frac{5}{4}$

6) $2x + 4y = 10$ write in slope intercept form.

$-2x \quad -2x$

$\frac{4y}{4} = \frac{-2x + 10}{4} \div 2$

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

7) $3x + 6y = 12$ standard

$-3x \quad -3x$

$\frac{6y}{6} = \frac{-3x + 12}{6}$ slope intercept form.

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

8) $(3,3)\ (1,-3)$

$m = \frac{y_2 - y_1}{x_2 - x_1} \quad \frac{-3-3}{1-3} = \frac{-6}{-2} = 3$

$(3,3) \quad m = 3$

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

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

$y - 3 = 3x - 9$

$+3 \qquad +3$

$y = 3x - 6$ → slope intercept form

$-3x \quad -3x$

→ $(-1)\ -3x + y = -6$

$3x - y = 6$ ✓ standard.

Name _____

Date _____

Period _____

1) $x+y=7$ standard

$x+0=7$

$x=7$

$x+y=7$

$0+y=7$

$y=7$

slope $x+y=7$

$-x \quad -x$

$y=-x+7$ slope intercept form.

slope $=-1$

2) $x-3y=9$

$x-3(0)=9$

$x=9$

$x-3y=9$

$0-3y=9$

$\frac{-3y}{-3}=\frac{9}{-3}$

$y=-3$

slope $x-3y=9$ standard $Ax+By=C$

$-x \quad -x$

$-3y=-x+9$ slope intercept form $y=mx+b$

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

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

slope $=\frac{1}{3}$

4) $-4x - 2y = -8$

$-4x - 2(0) = -8$

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

$x = 2$ ✓

$-4x - 2y = -8$

$-4(0) - 2y = -8$

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

$y = 4$ ✓

slope $-4x - 2y = -8$

$+4x \quad +4x$

$\frac{-2y}{-2} = \frac{4x - 8}{-2}$

$y = -2x + 4$

slope $= -2$

Notes

Name

Date 10/14/20

1) standard form.

$y = mx + b$ write each equation in standard form.

$Ax + By = C$

$y = x - 4$

$-x \quad -x$

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

$x - y = 4$

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

$-\frac{1}{2}x \quad -\frac{1}{2}x$

$-2\left(-\frac{1}{2}x + y = -5\right)$

$\frac{2}{2}x - 2y = 10$

$1x - 2y = 10$

Point slope.

3) $y + 6 = -3(x+1)$

$y + 6 = -3x - 3$

$-6 \quad\quad -6$

$y = -3x - 9$ slope intercept. form

standard form.

$Ax + By = C$

$+3x \quad +3x$

$3x + y = -9$ — standard form.

4.) $y - 3 = -\frac{7}{9}(x + 9)$ point slope

$y - 3 = -\frac{7}{9}x - 7$

$+3 \quad\quad +3$

$y = -\frac{7}{9}x - 4$ slope intercept.

$+\frac{7}{9}x \quad +\frac{7}{9}x$

$\frac{9}{7}\left(\frac{7}{9}x + y = -4\right)$

$x + \frac{9}{7}y = \frac{-36}{7}$

5) (4, -2) (5, -4) standard form

so

$m = \frac{y_2 - y_1}{x_2 - x_1}$ $\frac{-4 + 2}{5 - 4} = \frac{-2}{1} = -2$

(4, -2) $m = -2$ point slope.

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

$y - -2 = -2(x - 4)$

$y + 2 = -2x + 8$

$-2 \qquad -2$

$y = -2x + 6$ → slope intercept form.

$+2x \qquad +2x$

$2x + y = 6$ ↔ standard form $Ax + By = C$

6) (1, 1) (-5, 7)

1. Step 1 find the slope.

$$m = \frac{y_2 - y_1}{x_2 - x_1} \quad \frac{7 - 1}{-5 + -1} = \frac{6}{-6} = -1$$

Step #2 subst. into point slope.

(1, 1) $m = -1$ point slope

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

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

$y - 1 = -1x + 1$

$+1 \qquad +1$

$y = -1x + 2$ slope intercept form. ✓

$+1x \qquad +1x$

$x + y = 2$ → standard form ✓

Name _____ Class _____ Date _____

3-5 Practice (continued) *Form G*

Standard Form

Write each equation in standard form using integers.

21. $y = x - 4$

22. $y - 4 = 5(x - 8)$

23. $y + 6 = -3(x + 1)$

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

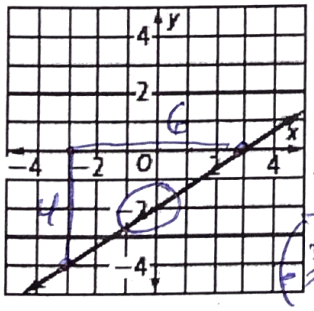
25. $y = \frac{1}{2}x - 10$

26. $y - 3 = -\frac{7}{9}(x + 4)$

27. You have only nickels and dimes in your piggy bank. When you run the coins through a change counter, it indicates you have 595 cents. Write and graph an equation that represents this situation. What are three combinations of nickels and dimes you could have? What are reasonable domain and range values for your function in terms of this real-world situation? What is the zero of the function and what does it mean in this situation?

For each graph, find the slope and *x*- and *y*-intercepts. Then write an equation in standard form using integers.

28.



rise/run = 4/6

y = 2 (2/3)

m = 2/3

b = −2

y-intercept.

y = mx + b

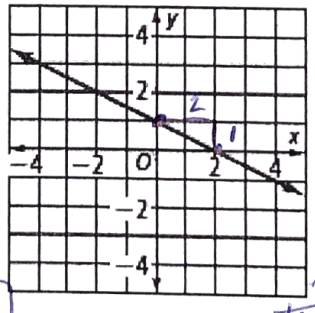
y = 2/3 x − 2

−2/3x − 2/3x

(3/2) −2/3x + y = −2

x − 3/2 y + 3

29.



rise/run = −1/2

b = 1

y = mx + b

y = (−1/2 x + 1)

+1/2x

1/2x

(2/1) (1/2 x + y = 1)

x + 2y = 2

Find the *x*- and *y*-intercepts of the line that passes through the given points.

30. (4, −2), (5, −4)

31. (1, 1), (−5, 7)

32. (−3, 2), (−4, 10)