Handout 1.3: More About Linear Equations

Name: Key **Date:** _____ **Per:** _____

Write an equation in point-slope form for the line that satisfies each set of conditions. $y-y_1=m(x-x_1)$

1) Slope -1, passes through $(0,0)$ (x_1, y_1)

$y-0=-1(x-0)$

$y=-x$

2) Slope 3, passes through $(1,-3)$

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

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

3) $(-2,1)$ and $(3,-2)$ (x_1, y_1) (x_2, y_2)

$m=\frac{y_2-y_1}{x_2-x_1}$

$m=\frac{-2-1}{3-(-2)}$

$m=-\frac{2}{5}$

$y-1=-\frac{2}{5}(x+2)$ or $y+2=-\frac{2}{5}(x-3)$

4) $(-5,-2)$ and $(-1,3)$

$m=\frac{3+2}{-1+5}$

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

$y+2=\frac{5}{4}(x+5)$ or $y-3=\frac{5}{4}(x+1)$

Write each equation in standard form. Identify *A*, *B*, and *C*. $Ax+By=C$

5) $y=-4x-7$

$+4x \quad +4x$

$4x+y=-7$

$A=4 \quad B=1 \quad C=-7$

6) $12y=4x+8$

$-4x \quad -4x$

$-1(-4x+12y)=(8)(-1)$

$\frac{4x}{2}-\frac{12y}{2}=\frac{-8}{2}$

$2x-6y=-4$

$A=2 \quad B=-6 \quad C=-4$

7) $2.4y=-14.4x$

$+14.4x \quad +14.4x$

$10(14.4x+2.4y)=(0)10$

$\frac{144x}{24}+\frac{24y}{24}=\frac{0}{24}$

$6x+y=0$

$A=6 \quad B=1 \quad C=0$

8) $\frac{2}{3}y-\frac{3}{4}x+\frac{1}{6}=0$

$-\frac{1}{6} \quad -\frac{1}{6}$

$12\left(-\frac{3}{4}x+\frac{2}{3}y\right)=\left(-\frac{1}{6}\right)12$

$9x-8y=2$

$A=9 \quad B=-8 \quad C=2$

Scratch

$-\frac{12}{1}\cdot\frac{-3}{4}=\frac{-36}{4}=9$

$-\frac{12}{1}\cdot\frac{2}{3}=\frac{24}{3}=-8$

$-\frac{12}{1}\cdot\frac{-1}{6}=\frac{-12}{6}=2$

Find the *x*-intercept and the *y*-intercept of the graph of each equation. Then graph the equation using the intercepts.

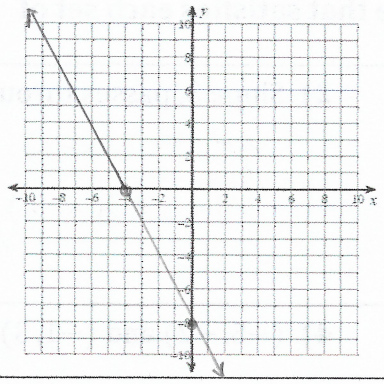
9) $y = -2x - 8$

$+2x \quad +2x$

$2x + y = -8$

x-int: $\frac{2x}{2} = \frac{-8}{2}$, $x = -4$

y-int: $y = -8$



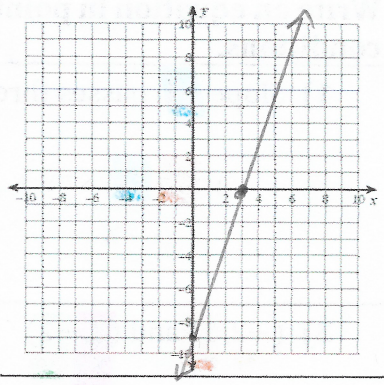
10) $5y = 15x - 45$

$-15x \quad -15x$

$-15x + 5y = -45$

x-int: $\frac{-15x}{-15} = \frac{-45}{-15}$, $x = 3$

y-int: $\frac{5y}{5} = \frac{-45}{5}$, $y = -9$

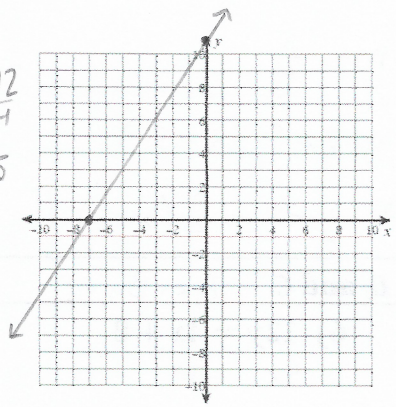


11) $-4y + 6x = -42$

$6x - 4y = -42$

x-int: $\frac{6x}{6} = \frac{-42}{6}$, $x = -7$

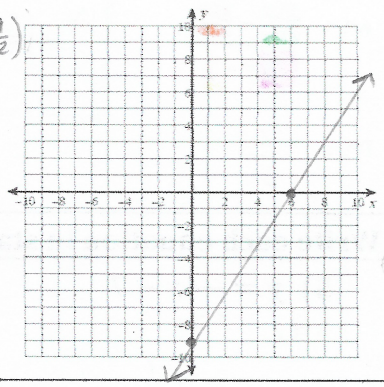
y-int: $\frac{-4y}{-4} = \frac{-42}{-4}$, $y = 10.5$



12) $\frac{1}{3}x - \frac{2}{9}y = 2$

x-int: $3(\frac{1}{3}x) = (2)3$, $x = 6$

y-int: $-\frac{9}{2}(-\frac{2}{9}y) = (2)(-\frac{9}{2})$, $y = -9$



13) A plumber charges $25 for a service call plus $50 per hour of service.

a. Write and equation in slope-intercept form that represents this situation.

$y = 50x + 25$

b. What does the slope represent in this situation?

The plumber charging $50 per hour.

c. What does the y-intercept represent in this situation?

The starting fee (or at 0 hours) is $25.

14) Aidyn collected 100 pounds of aluminum cans to recycle. He plans to collect an additional 25 pounds each week.

a. Write and equation in slope-intercept form that represents this situation.

$y = 25x + 100$

b. What does the slope represent in this situation?

Aidyn collects 25lbs per week.

c. What does the y-intercept represent in this situation?

The starting amount (at 0 weeks) is 100 lbs.