6-3,4 Using the Calculator to Graph Linear Equations

In order to graph linear equations, we need to have the equations in $y = mx + b$ form. If the equation is not in this form, we need to solve the equations for y (get y by itself).

1. $3y = 6x - 15$

$\frac{3y}{3} = \frac{6x}{3} - \frac{15}{3}$

$y = 2x - 5$

Slope: $\frac{2}{1}$ y-int: -5

2. $2x + 7y = 21$

$-2x \quad -2x$

$\frac{7y}{7} = \frac{21 - 2x}{7}$

$y = 3 - \frac{2}{7}x$

$y = mx + b$

Slope: $-\frac{2}{7}$ y-int: 3

3. $4x - 5y = -45$

$-4x \quad -4x$

$\frac{-5y}{-5} = \frac{-45 - 4x}{-5}$

$y = 9 + \frac{4}{5}x$

Slope: $\frac{4}{5}$ y-int: 9

4. $y - 5 = 3(x + 4)$

$y - 5 = 3x + 12$

$+5 \quad +5$

$y = 3x + 17$

Slope: 3 y-int: 17

5. $y + 6 = -\frac{1}{2}(x + 8)$

$y + 6 = -\frac{1}{2}x - 4$

$-6 \quad -6$

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

Slope: $-\frac{1}{2}$ y-int: -10

6. $y + 4 = \frac{3}{4}(x - 4)$

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

$-4 \quad -4$

$y = \frac{3}{4}x - 7$

Slope: $\frac{3}{4}$ y-int: -7

As an aside... We can also solve equations the only contain variables for one of the variables. These equations are called **literal equations**.

Solve for L

7. $P = 2W + 2L$

$-2W \quad -2W$

$\frac{P}{2} - \frac{2W}{2} = \frac{2L}{2}$

$\frac{P}{2} - W = L$

Solve for x

8. $3ax + b = c$

$-b \quad -b$

$\frac{3ax}{3a} = \frac{c - b}{3a}$

$x = \frac{c - b}{3a}$

Solve for y

9. $\frac{ey}{n} + k = t$

$-k \quad -k$

$n \cdot \frac{ey}{n} = t - k \cdot n$

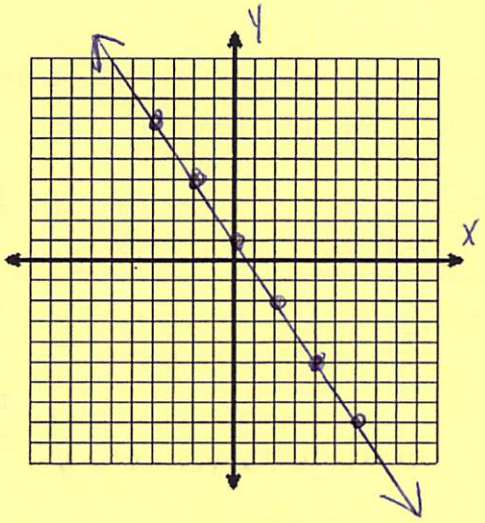
$\frac{ey}{e} = \frac{n(t - k)}{e}$

$y = \frac{n(t - k)}{e}$

Graph the following equation using the table for the graph from the calculator.

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

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



Circle the Coordinates that are on the line.

(9, -12.5) (5, -6) (15, -21.5)

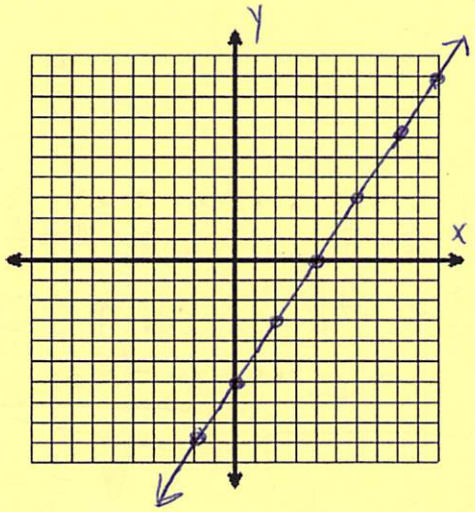
(-8, 13) (13, -19) (0, 1)

2. $3x - 2y = 12$

$-3x \quad -3x$

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

$y = \frac{3}{2}x - 6$



What is the coordinate of the *y*-intercept?

(0, -6)

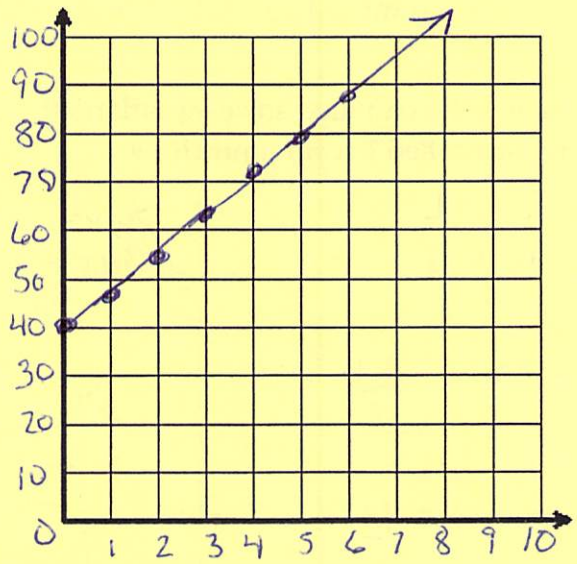
What is the coordinate of the *x*-intercept?

(4, 0)

Applying Linear Functions

A Ford dealership has 40 cars in stock. The auto manufacturer will deliver new cars to the Ford dealership by car carrier. Each carrier, *c*, holds eight cars. Model the situation with a linear function and graph.

Carrier	Cars
0	40
1	48
2	56
3	64
4	72
5	80
6	88



Linear Function Rule: $y = 8x + 40$

Practice 6-3,4

Name _____

~~$3y = -x + 9$~~

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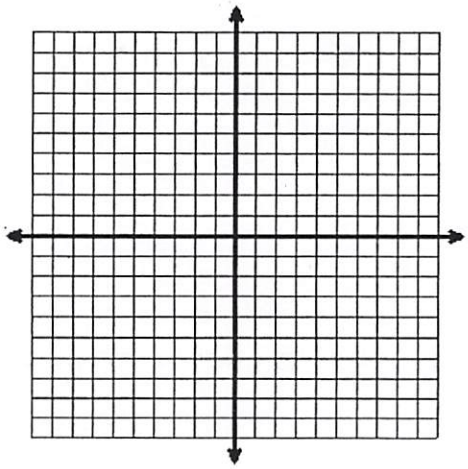
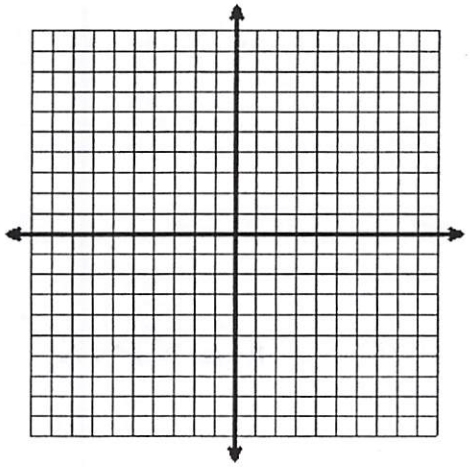
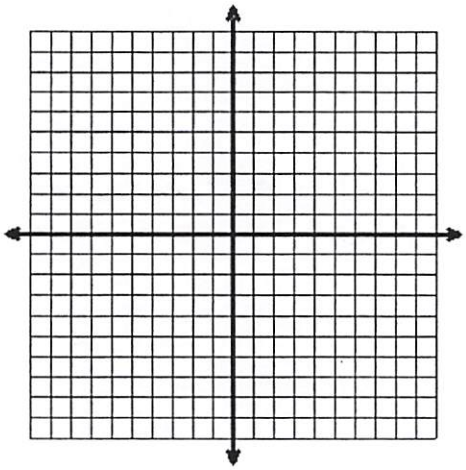


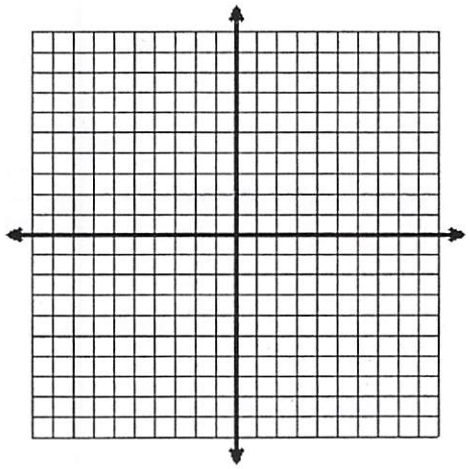
$5y = -10x - 20$



$6y + 6x = 24$

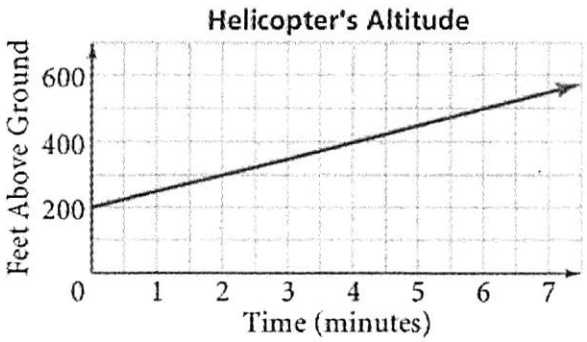


$y + 3 = 3(x + 1)$

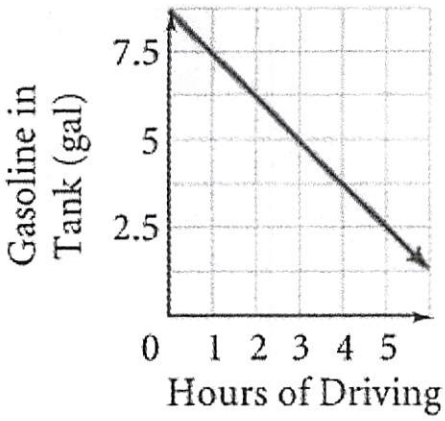


Determine the linear equation for each of the following graphs.

5.



6.



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