

Write a rule to relate the variables in the table.

1.

x	1	2	3	4
y	1	4	9	16

2.

x	0	2	4	6
y	1.5	1.3	1.1	0.9

3.

x	1	2	3	4
y	1	8	27	64

4.

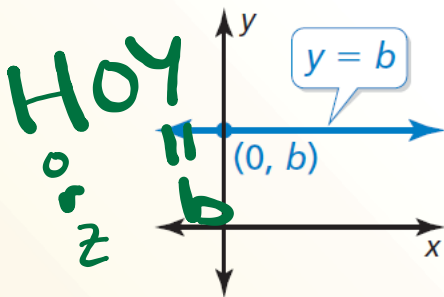
x	1	2	3	4
y	9	15	21	27

Essential Question

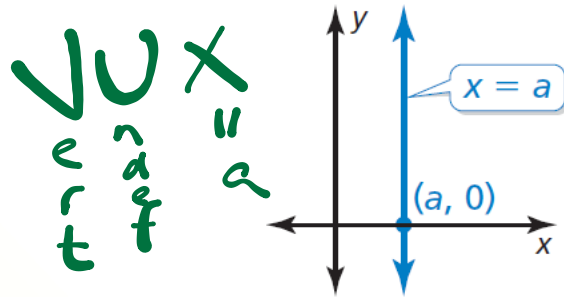
How can you describe the graph of the equation $Ax + By = C$?

Core Concept

Horizontal and Vertical Lines

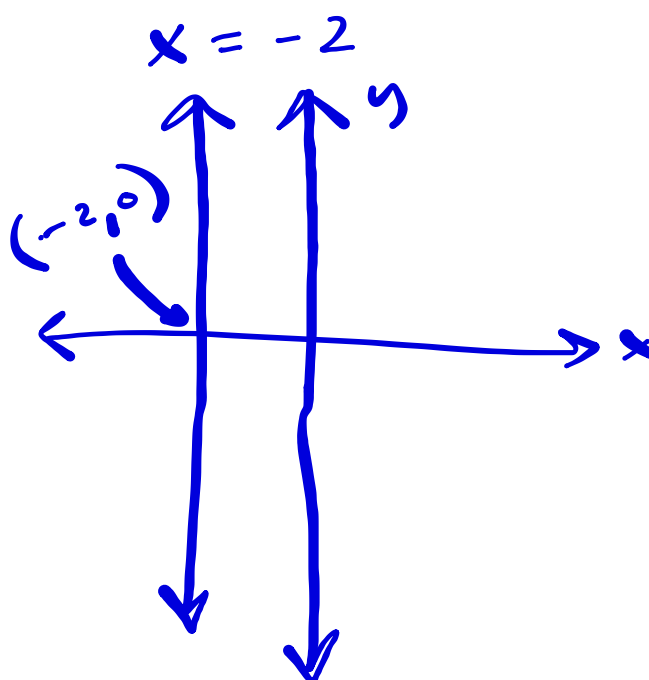
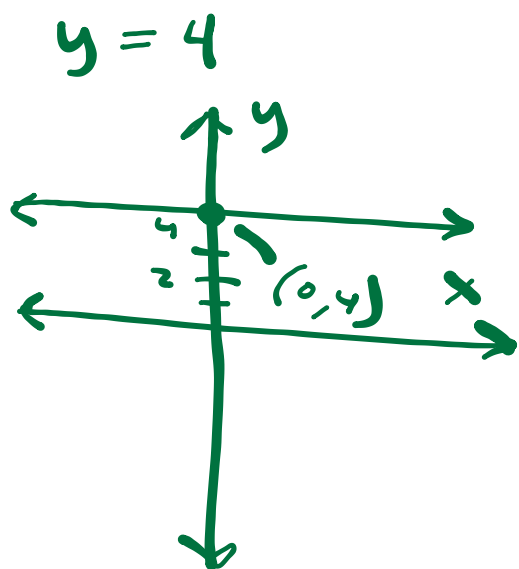


The graph of $y = b$ is a horizontal line. The line passes through the point $(0, b)$.



The graph of $x = a$ is a vertical line. The line passes through the point $(a, 0)$.

Graph (a) $y = 4$ and (b) $x = -2$.



Graph the linear equation.

1. $y = -2.5$

2. $x = 5$

Core Concept

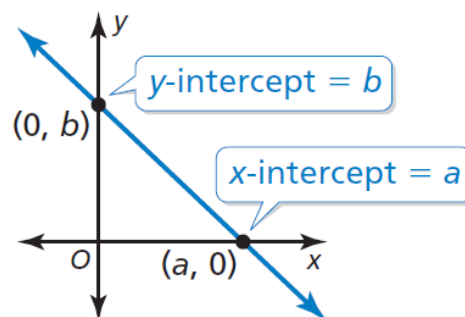
Using Intercepts to Graph Equations

The **x-intercept** of a graph is the x -coordinate of a point where the graph crosses the x -axis. It occurs when $y = 0$.

The **y-intercept** of a graph is the y -coordinate of a point where the graph crosses the y -axis. It occurs when $x = 0$.

To graph the linear equation $Ax + By = C$, find the intercepts and draw the line that passes through the two intercepts.

- To find the x -intercept, let $y = 0$ and solve for x .
- To find the y -intercept, let $x = 0$ and solve for y .



Use intercepts to graph the equation $3x + 4y = 12$.

x-int: $\rightarrow y = 0$

$$3x + 4(0) = 12$$
$$\frac{3x}{3} = \frac{12}{3} \quad \boxed{x = 4}$$

(4, 0)

y-int: $\rightarrow x = 0$

$$3(0) + 4y = 12$$
$$\frac{4y}{4} = \frac{12}{4}$$
$$\boxed{y = 3}$$

(0, 3)

Use intercepts to graph the linear equation. Label the points corresponding to the intercepts.

$$2x - y = 4$$

$$x + 3y = _9$$

You are planning an awards banquet for your school. You need to rent tables to seat 180 people. Tables come in two sizes. Small tables seat 6 people, and large tables seat 10 people. The equation $6x + 10y = 180$ models this situation, where x is the number of small tables and y is the number of large tables.

a. Graph the equation. Interpret the intercepts.

b. Find four possible solutions in the context of the problem.