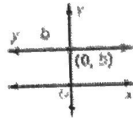


Lesson 4.1 Special Cases and Applications

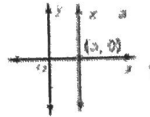
Key Idea

Graphing Horizontal and Vertical Lines

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



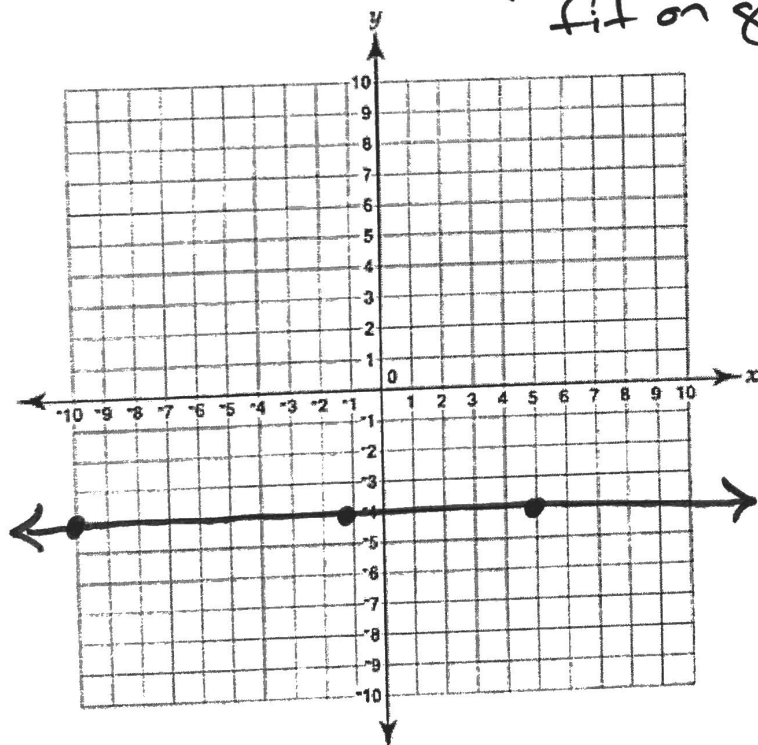
The graph of $x = a$ is a vertical line passing through $(a, 0)$.



Graph the line $y = -4$

*X coordinate can be ANYTHING
(pick to fit on graph)*

Create 3 points.



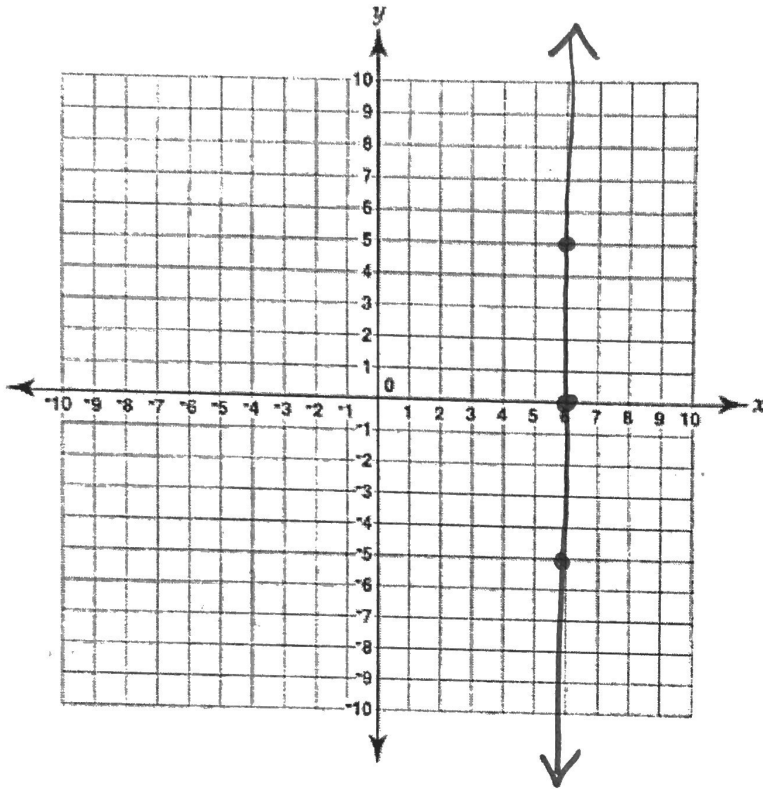
$(-10, -4)$

$(-1, -4)$

$(5, -4)$

Graph the line $x = 6$

pick any number
for y coordinate
Create 3 points.



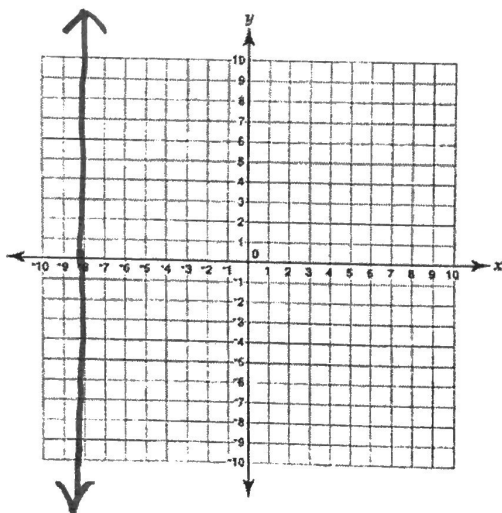
$(6, -5)$

$(6, 0)$

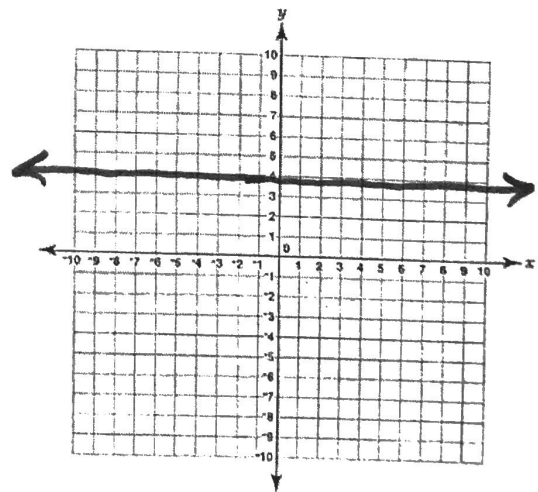
$(6, 5)$

On Your Own.

Graph the equation $x = -8$



Graph the equation $y = 4$

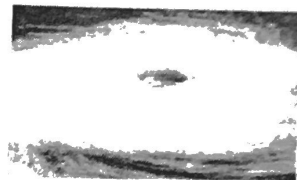


Application Questions: Interpreting Story Problems and Graphs.

The wind speed y (in miles per hour) of a tropical storm is $y = 2x + 66$, where x is the number of hours after the storm enters the Gulf of Mexico.

Wind Speed →

- Graph the equation.
- When does the storm become a hurricane?



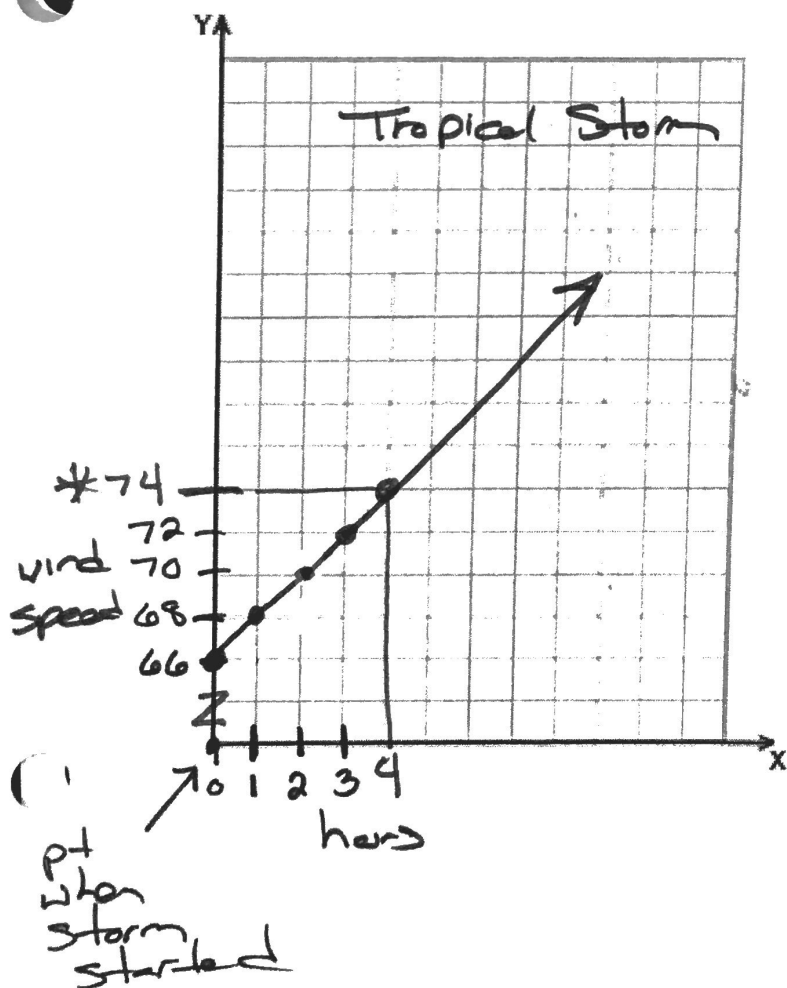
A tropical storm becomes a hurricane when wind speeds are at least 74 miles per hour.

74 miles/hr

Make a table of values.

hours →

x	$y = 2x + 66$	y	(x, y)
0	$y = 2(0) + 66$	66	(0, 66)
1	$y = 2(1) + 66$	68	(1, 68)
2	$y = 2(2) + 66$	70	(2, 70)
3		72	(3, 72)



The equation $y = 2x + 4$ represents the cost y (in dollars) of renting a movie after x days of late charges.

- Graph the equation.
- Use the graph to determine how much it costs after 3 days of late charges.
- Interpret the equation. What do the numbers 2 and 4 represent?

Find Coordinates by Creating a T-Table

$$y = 2x + 4$$

x	y
0	4
1	6
2	8
3	10
4	12

Cost

