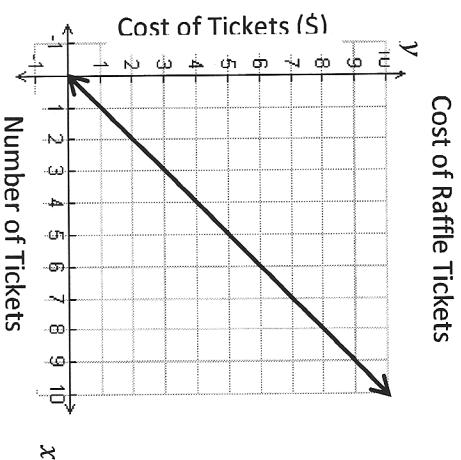


In direct variation, two variables are related to each other in a way that causes the ratio of their values to always stay the same.

If y varies directly as x , then the graph of all points describing this relationship will be a line passing through the origin $(0,0)$.



FUNCTION TABLE

	x	y	
$+1$	1	4	$+4$
$+1$	2	8	$+4$
$+1$	3	12	$+4$
$+1$	4	16	$+4$

Check the ratios to see if they are all the same.

$$\frac{\Delta y}{\Delta x} = \frac{4}{1} = \frac{4}{1} = \frac{4}{1}$$

Now work backward to find where x or $y = 0$. Is the point $(0,0)$ on the table?

This relationship is **proportional** because all of the ratios in the table are equal and the point $(0,0)$ would be on the table.

You can also graph the points on the table to show that they form a line and it passes through the origin.

$$x = 3y$$

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

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

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

EQUATION

Rewrite the equation to solve for y . Then, check to see if the equation can be written in the form $y = kx$. If the equation can be written as $y = kx$, then it shows **direct variation**.

GRAPH

EQUATION

**DIRECT
VARIATION**

**FUNCTION
TABLE**