

Direct Variation Guided Notes

Direct Variation

A direct variation is a relationship between two quantities that can be represented by a function of the form:

$$y = kx$$

Where $k \neq 0$.

The value of k can be found as:

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

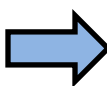
Problem 1: Does the equation $5y = -3x$ represent a direct variation? If so, find the constant of variation.

Re-write the equation in the form of $y = kx$.

$$5y = -3x$$

$$y = -\frac{3}{5}x$$

The equation represents a direct variation. Compare with $y = kx$:


$$k = -\frac{3}{5}$$

Writing equation of a direct variation

If we are given any ordered pair (x_1, y_1) for a relationship that has a direct variation, we will find the constant of variation k and then write the equation.

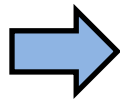

$$k = \frac{y_1}{x_1}$$


$$y = kx$$

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Problem 2: Suppose y varies directly with x and $y = 21$ when $x = 3$. Write a direct variation equation relating x and y .

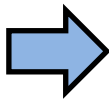
First find the constant of variation:



$$k = \frac{21}{3} = 7$$

Now write the equation:

$$y = kx$$

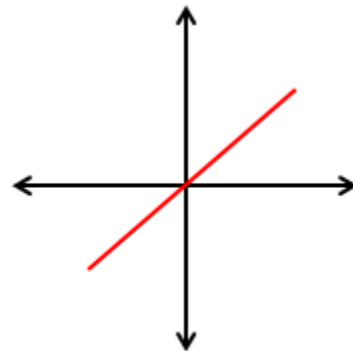


$$y = 7x$$

Graphing a direct variation

The graph of a direct variation is a straight line that passes through the origin.

$$y = kx$$



$$y = kx$$