Direct Variation

$$y = kx \text{ or } k = \frac{y}{x}$$

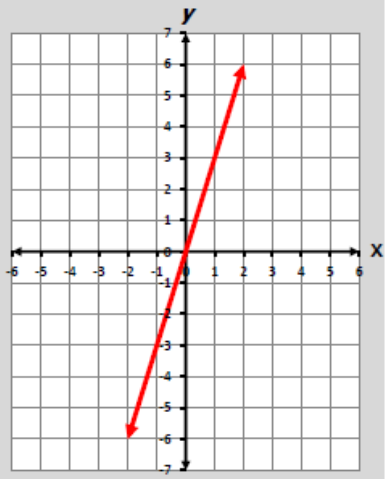
constant of variation, $k \neq 0$

Example:

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

x	y
-2	-6
-1	-3
0	0
1	3
2	6

$$3 = \frac{-6}{-2} = \frac{-3}{-1} = \frac{3}{1} = \frac{6}{2}$$



ıe graph of all points describing a direct
ariation is a line passing through the origin.

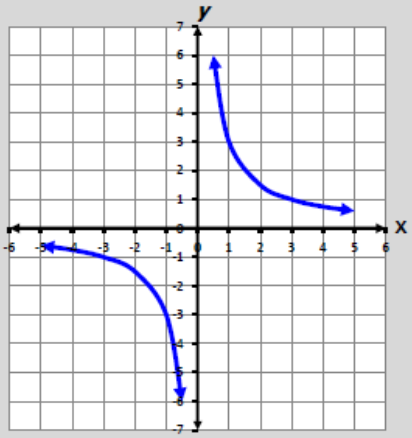
Inverse Variation

$$y = \frac{k}{x} \quad \text{or} \quad k = xy$$

constant of variation, $k \neq 0$

Example:

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



The graph of all points describing an inverse variation relationship are two curves that are reflections of each other.

Joint Variation

$$z = kxy \text{ or } k = \frac{z}{xy}$$

constant of variation, $k \neq 0$

Examples:

Area of a triangle varies jointly as its length of the base, b, and its height, h.

$$A = \frac{1}{2}bh$$

For Company ABC, the shipping cost in dollars, C, for a package varies jointly as its weight, w, and size, s.

$$C = 2.47ws$$