

Direct and Inverse Variation

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Direct Variation: $y = kx$

Must go
through
(0,0)

The total cost for a pizza party varies directly with the number of pizzas bought.

y = total cost, x = # pizzas (\$5/pizza)

$$y = 5x$$

Inverse Variation: $y = \frac{k}{x}$

Constant
of
Variation

5 pizzas (40 pieces) are shared by a group. The amount of pizza per person varies inversely with the number of people in the group.

y = slices per person x = # people (40 slices total)

$$y = \frac{40}{x}$$

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Translations of Simple Rational Functions

Graph the **vertical asymptote** at $x = h$ $y = \frac{a}{x - h} + k$
 Graph the **horizontal asymptote** at $y = k$

Plot two clear points to the left of the asymptote and two clear points to the right.

Connect the pairs of points to create a pair of hyperbola.

$$f(x) = \frac{2}{x - 1} + 3$$

x	y
3	4
2	5
0	1
-1	2

