

Inverse Proportionality

Table of values, graph and rule

Relationship Between Variables:

In an inversely proportional situation, the product of the independent and dependent variables will always be the same (it remains **constant**).

This means that if you multiply the numbers in each ordered pair, you will get the same result each time.

$$(x)(y) = \text{constant}$$

Ex.: In the following table, you will see that the speed of the vehicle, multiplied by the corresponding arrival time will always be equal to 100.

Table of Values:

Notice in the tables below, that as the speed of the vehicle *increases*, that the travel time taken to arrive at the destination *decreases*.

Ex.: Time taken to travel 100 miles

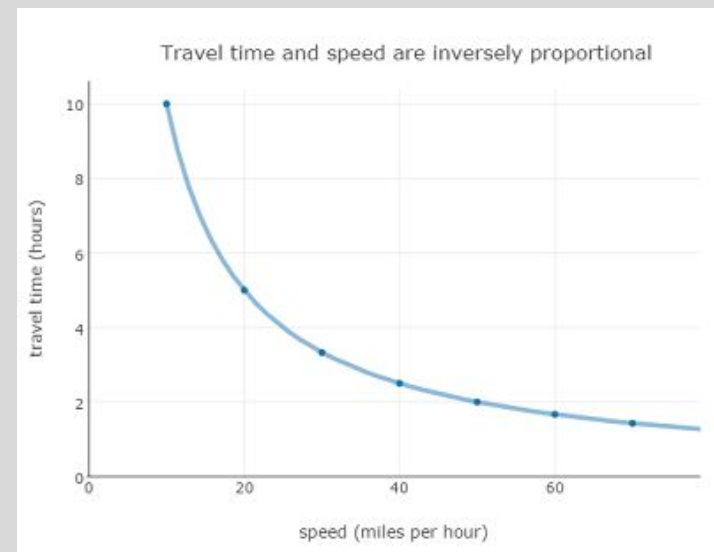
Speed (miles per hour)	Arrival Time (hours)
10	10
20	5
25	4
50	2

Speed (miles per hour)	10	20	25	50
Arrival Time (hours)	10	5	4	2

Graph:

In a graph that represents inverse proportionality, you will see a curve that will gradually approach the axes.

This curve is created every time that the dependent variable (y) decreases, as the independent variable (x) increases.



Algebraic Rule:

The rule of an inversely proportional situation is always in the form of:

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

The (y) value can be calculated by using a constant (a) and dividing it by the independent variable (x).

Ex.: y = arrival time (hours)

a = total distance travelled (100 miles)

x = speed (miles per hour)

$$y = \frac{100}{50}$$

$$y = 2 \text{ hours}$$