MasterMath

ALGEBRA

Inverse Variation

You ride your bike for exercise, and normally keep your speed at 8 MPH. You understand that the longer your ride (t), the further you further you travel (d).

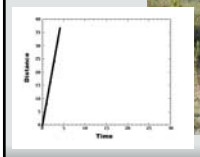
$d = 8t$

You bike to Grandmothers a couple times per year. The trip is 8 miles. You time the trip, and discover that you can predict how long it will take you (t) for any speed you travel (s).

$8 = s * t$

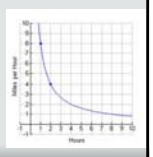
$8/s = t$

$t = 8/s$



Distance (miles)	Time (hours)
8	1
16	2
24	3
32	4
40	5
48	6
56	7
64	8

Speed (MPH)	Time (hours)
1	8
2	4
3	2.67
4	2
5	1.6
6	1.33
7	1.14
8	1



Inverse Variation

Direct Variation:

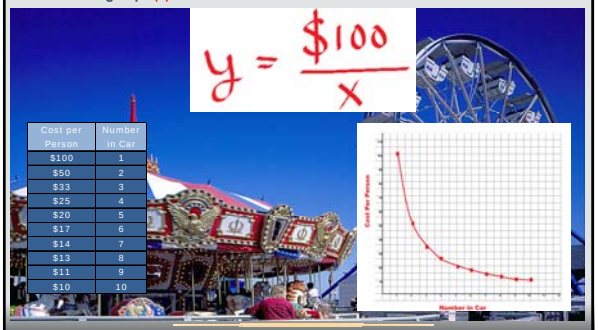
1. As x gets bigger y gets bigger
2. As x gets smaller, y gets smaller
3. Graphs as straight line
4. Line goes through origin
5. $y = kx$

Inverse Variation:

1. As x gets bigger y gets smaller
2. As x gets smaller, y gets bigger
3. Graphs as a curved line
4. $y = \frac{k}{x}$

Inverse Variation

Wally World Amusement Park is having a sale. For $100, you can bring a car or van load of people into the Park. Can you create a formula to determine the cost per person (y) for various sized groups (x)?



Inverse Variation

You try it!

Determine whether this is a direct or inverse variation:

$3y = 66 \div x$

Inverse Variation

You try it!

Determine whether this is a direct or inverse variation:

$3y = 66 \div x$

$\frac{3y}{3} = \frac{66}{3x}$

$y = \frac{22}{x}$

Inverse Variation

You try it!

Determine whether this is a direct or inverse variation:

$6y + 3 = 12/x$

Inverse Variation

You try it!

Determine whether this is a direct or inverse variation:

$6y + 3 = 12/x$

$$6y + 3 - 3 = \frac{12}{x} - 3$$

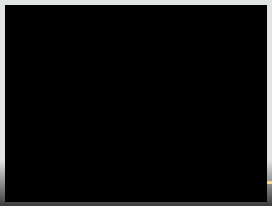
$$\frac{6y}{6} = \frac{12}{6x} - \frac{3}{6}$$

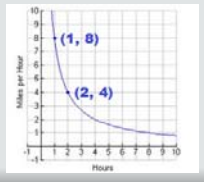
$$y = \frac{2}{x} - \frac{1}{2}$$

Inverse Variation

You try it!

The variables x and y vary inversely. Write an equation relating x and y.





Inverse Variation

You try it!

The variables x and y vary inversely. Write an equation relating x and y.

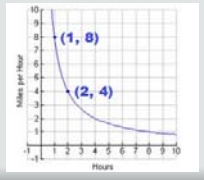
$y = \frac{k}{x}$

$y = \frac{8}{x}$

$8 = \frac{k}{1}$

$4 = \frac{k}{2}$

$k = 8$



Inverse Variation

You try it!

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Inverse Variation