NAME _____ DATE _____ PERIOD _____

12-1 Study Guide and Intervention

Inverse Variation

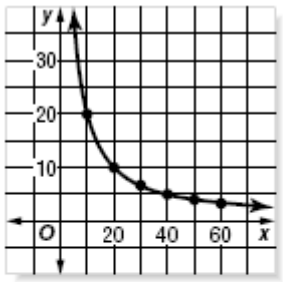
Graph Inverse Variation Situations in which the values of y decrease as the values of x increase are examples of **inverse variation**. We say that y varies inversely as x, or y is inversely proportional to x.

Inverse Variation Equation	an equation of the form $xy = k$, where $k \neq 0$

Example 1 **Suppose you drive 200 miles without stopping. The time it takes to travel a distance varies inversely as the rate at which you travel. Let x = speed in miles per hour and y = time in hours. Graph the variation.**

The equation $xy = 200$ can be used to represent the situation. Use various speeds to make a table.

x	y
10	20
20	10
30	6.7
40	5
50	4
60	3.3



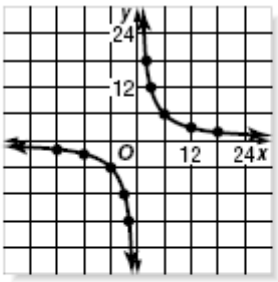
Example 2 **Graph an inverse variation in which y varies inversely as x and $y = 3$ when $x = 12$.**

Solve for k.

$xy = k$ Inverse variation equation
$12(3) = k$ $x = 12$ and $y = 3$
$36 = k$ Simplify.

Choose values for x and y whose product is 36.

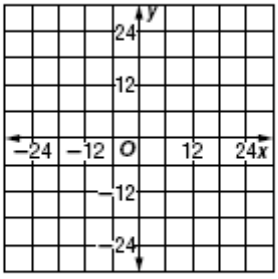
x	y
−6	−6
−3	−12
−2	−18
2	18
3	12
6	6



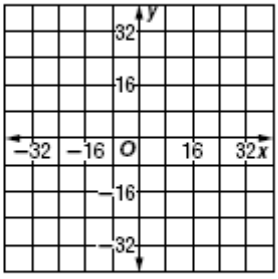
Exercises

Graph each variation if y varies inversely as x.

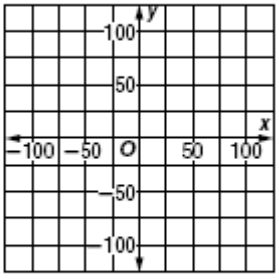
1. $y = 9$ when $x = -3$



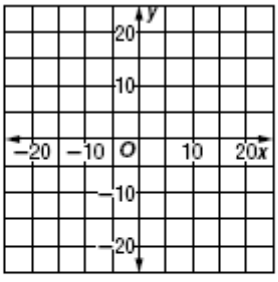
2. $y = 12$ when $x = 4$



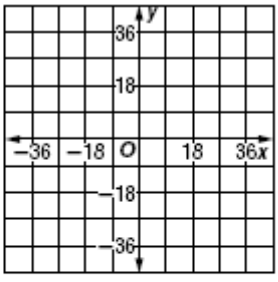
3. $y = -25$ when $x = 5$



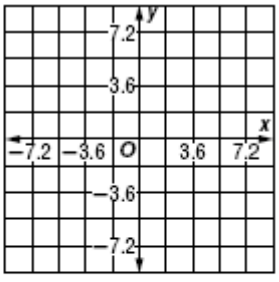
4. $y = 4$ when $x = 5$



5. $y = -18$ when $x = -9$



6. $y = 4.8$ when $x = 5.4$



Lesson 12-1