

NAME: _____

P.I. A2.A.5: Use direct and inverse variation to solve for unknown values

1. Does the following represent a direct or an inverse variation?

x	3	1.5	-0.375	12
y	-0.7	-1.4	5.6	-0.175

2. Decide whether the data show inverse variation. If they do, find the missing value.

x	0.2	-0.5	?	-1
y	10	-4	0.25	-2

3. Write an inverse variation to model the data in the table.

x	3	5	9	10
y	30	18	10	9

4. The time t required to drive a certain distance varies inversely as the speed r . If it takes 4 hours to drive the distance at 50 miles per hour, how long will it take to drive the same distance at 25 miles per hour?

5. If a is inversely proportional to the square of b and a is $\frac{1}{12}$ when b is 6, find a when b is 3.

[A] $\frac{1}{48}$ [B] $\frac{1}{3}$ [C] $-\frac{35}{12}$ [D] $\frac{1}{24}$

6. The data vary inversely. One point is (4, 1.4). Which point satisfies this same equation?

[A] (5, 1.5) [B] (6, 2.1)
[C] (3, 1.2) [D] (1.12, 5)

7. Which set of data models an inverse variation?

[A] $x_1 = 2.8$; $y_1 = 4.2$
 $x_2 = 5.6$; $y_2 = 8.4$

[B] $\frac{x_1}{y_1} = 4$; $\frac{x_2}{y_2} = 4$

[C] $x_1 = 3.7$; $y_1 = 6$
 $x_2 = 5.1$; $y_2 = 7.4$

[D] $x_1 y_1 = 4$; $x_2 y_2 = 4$

8. Compare the quantity in Column A with the quantity in Column B.

$xy = k$

Column A Column B

x y

- [A] The quantity in Column A is greater.
[B] The quantity in Column B is greater.
[C] The two quantities are equal.
[D] The relationship cannot be determined on the basis of the information supplied.

9. Which equation is an inverse variation?

[A] $y = 2.5x$ [B] $x = 2.5y$

[C] $\frac{y}{x} = 2.5$ [D] $\frac{x}{y} = 2.5$

[E] $xy = 2.5$

10. The speed of a gear varies inversely with the number of teeth. Gear A has 40 teeth and a speed of 6000 rpm (revolutions per minute). If gear B meshes with gear A and has 25 teeth, how fast will gear B turn, in rpm?

- [1] inverse variation
- [2] 8
- [3] $xy = 90$
- [4] 8 hr
- [5] B
- [6] D
- [7] D
- [8] D
- [9] E
- [10] 9600 rpm