

1. Give an example in everyday life of direct variation and write an equation as a mathematical model.

Which of these choices is an example of an everyday life example of direct variation? Choose the correct answer below.

- ☐ A paycheck that varies depending on the time worked.
- ☐ The distance a person can see that varies as a snowstorm becomes more intense.
- ☐ The temperature of a gas that varies as the size of its container is changed.
- ☐ The height of a skydiver that varies depending on the time of the fall.

Which of these equations shows the relationship of direct variation? Choose the correct answer below.

☐ A $y = kx$

☐ B $y = \frac{k}{x}$

2. Fill in the blank:

If y varies inversely with x , we write the equation _____.

If y varies inversely with x , we write the equation

$y = kx.$

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

3. If y varies directly as x , and $y = 7$ when $x = 5$, find y when $x = 10$.

$y = \square$

4. The pressure exerted by a certain liquid at a given point varies directly as the depth of the point beneath the surface of the liquid. The pressure at 50 feet is 26 pounds per square inch. What is the pressure at 170 feet?

The pressure at 170 feet is $\square$ pounds per square inch.

(Type an integer or a decimal.)

5. The stopping distance d of a car after the brakes are applied varies directly as the square of the speed r . If a car traveling 50 mph can stop in 110 ft, how many feet will it take the same car to stop when it is traveling 100 mph?

It will take ft.

(Simplify your answer. Type an integer or a fraction.)

6. If y varies inversely with the square of x , and $y = 13$ when $x = 4$, find y when $x = 0.2$.

$y =$

(Simplify your answer. Type an integer or a decimal.)

7. Last summer the price of gasoline changed frequently. One station owner noticed that the number of gallons he sold each day seemed to vary inversely with the price per gallon. If he sold 2600 gallons when the price was \$4.10, how many gallons could he expect to sell if the price fell to \$3.70?

The station owner could expect to sell approximately gallons of gasoline.

(Simplify your answer. Round to the nearest whole number as needed.)

8. Every year on Earth Day, a group of volunteers pick up garbage at Hidden Falls Park. The time it takes to clean the beach varies inversely with the number of people picking up garbage. Last year, 32 volunteers took 7 hours to clean the park. If 69 volunteers come to pick up garbage this year, how long will it take to clean the park?

It will take approximately hours.

(Simplify your answer. Type an integer or decimal rounded to the nearest tenth as needed.)

9. The weight that can be safely supported by a 2- by 6-inch support beam varies inversely with its length. A builder finds that a support beam that is 6 feet long will support 800 pounds. Find the weight that can be safely supported by a beam that is 16 feet long.



The weight that can be safely supported by the beam is lb.

10. The amount of time it takes to fill a whirlpool tub is inversely proportional to the square of the radius of the pipe used to fill it. If a pipe of radius 3 inches can fill the tub in 6 minutes, how long will it take the tub to fill if a pipe of radius 4.5 inches is used?

The tub would fill in approximately minutes.

(Simplify your answer. Type an integer or decimal rounded to the nearest tenth as needed.)