

Epub free Algebra direct inverse variation answers (2023)

a surefire way of knowing what you're dealing with is to actually algebraically manipulate the equation so it gets back to either this form which would tell you that it's inverse variation or this form which would tell you that it is direct variation in maths inverse variation is the relationships between variables that are represented in the form of $y = \frac{k}{x}$ where x and y are two variables and k is the constant value it states if the value of one quantity increases then the value of the other quantity decreases definition solve inverse variation problems write the formula for inverse variation substitute the given values for the variables solve for the constant of variation write the equation that relates x and y solve inverse variation problems step 1 write the formula for inverse variation step 2 substitute the given values for the variables step 3 solve for the constant of variation step 4 write the equation that relates x and y solution if the data in the table represents inverse variation the product of x and y must be a constant number obviously multiplying x and y together yields a fixed number this becomes our constant of variation thus $xy = k$ thus the formula for inverse variation is given as follows $y = \frac{k}{x}$ or $y = \frac{k}{x}$ here k is the constant of proportionality also $x \neq 0$ and $y \neq 0$ product rule for inverse variation suppose the two solutions of inverse variation are x_1, y_1 and x_2, y_2 problem 1 if y varies inversely as x and $y = 14$ when $x = 20$ what is the value of y when x is 5 show answer problem 2 suppose s varies indirectly as t and $s = 15$ when $t = 25$ determine the value of s when $t = 25$ show answer problem 3 solution if $xy = k$ where k is a non zero constant a substitute $x = 3$ and $y = 8$ into the equation to obtain $k = 3 \times 8 = 24$ the equation is $xy = 24$ b when $x = 10$ $y = \frac{24}{10} = 2.4$ y example suppose that y varies inversely as x^2 and that $y = 10$ when $x = a$ find the equation connecting x and y b find the value of y when $x = 3$ product rule for inverse variation if x_1, y_1 and x_2, y_2 are solutions of an inverse variation then $x_1 y_1 = k$ and $x_2 y_2 = k$ substitute x_1, y_1 for k $x_1 y_1 = x_2 y_2$ or $x_1 x_2 y_2 = y_1$ the equation $x_1 y_1 = x_2 y_2$ is called the product rule for inverse variations example question 1 if y varies inversely with x and when $y = 100$ $x = 30$ what is the value of y when $x = 10$ solution given $y = 100$ $x = 30$ the inverse variation formula is $y = \frac{k}{x}$ $100 = \frac{k}{30}$ $k = 100 \times 30 = 3000$ now $x = 10$ $k = 3000$ $y = \frac{k}{x} = \frac{3000}{10} = 300$ direct and inverse variation name date period 1 determine whether the given equation represents a direct or inverse variation 1 $xy = 15$ 2 $y = 9x + 3$ 3 $y = 13 - 12x$ 4 $y = 13x^5$ 5 $y = 0.6x$ 6 $y = 4x^2$ find the constant of variation 7 $y = 3x^8$ 8 $xy = 7.9$ 9 $y = x^5$ 10 $y = 1.9x$ 11 $y = 3.5x$ 12 $y = 15x$ explanation let's consider the general case when y varies directly with x if y varies directly with x then we can express their relationship to one another using the following formula $y = kx$ where k is a constant therefore if y varies directly as the square of x and the cube of z we can write the following analogous equation math pre algebra direct and inverse variation worksheets direct and inverse variation worksheets are designed for high schoolers and are divided into subtopics like identifying the type of variation by observing equations graphs and tables finding the constant of variation and much more direct and inverse variation recognize direct inverse variation google classroom which equation shows direct variation

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