

Chapter 8.2 Worksheet

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1. Suppose that y varies inversely as x , $y = 45$ when $x = \frac{1}{3}$. Find the constant variation (k). Find x when $y = 30$
2. If y varies inversely as x , and $y = 3$ and $x = 6$, find x when $y = 18$.
3. If x is inversely proportional to the square of y , and $x = 3$ and $y = 6$, find x when $y = 3$.
4. If x is inversely proportional to the square of y , and $x = 1$ and $y = 6$, find x when $y = 32$.
5. If x varies inversely as the square root of y , and $x = 12$ and $y = 36$, find x when $y = 16$.
6. Suppose that x varies directly as y and inversely as z^2 , and that $x = 27$ when $y = 3$ and $z = 2$. Find x when $y = 2$ and $z = 3$
7. Suppose a varies jointly as b and c^2 and inversely as d , and $a = 120$ when $b = 5$, $c = 3$, and $d = 2$. Find b when $a = 80$, $c = 1$, and $d = 6$

8. The Frequency of a radio signal varies inversely as the wave length. A signal of frequency 1200 kilohertz (kHz), which might be the frequency of an AM radio station, has wave length 250m. What frequency has a signal of wave length 400m?
9. The heat loss through a glass window varies jointly as the area of the window and the difference between the inside and outside temperatures. If the loss through a window with are 3m^2 is 720 BTU when the temperature difference is 15°C , what is the heat loss through a window with area 4.5m^2 when the temperature difference is 12°C ?
10. The Volume of a cone varies directly jointly as the height and square of the radius of the base. A cone of height 8cm and base diameter 9cm has volume 54π . Find the constant of variation and a general formula for the volume of a cone.