

Date Completed: _____

Mentor Initials: _____

A mentor can change everything.



Direct and Inverse Variation

- Given that a varies inversely as b , if $a = 5$ when $b = 2$, what is the value of a when $b = 1$?
 - 2
 - 2.5
 - 5
 - 10
 - 20
- The number of high heels Theresa May buys varies directly with her score on the stress scale (out of 10). On Monday, she scored a 3 on the stress scale and bought 12 pairs of high heels. On Tuesday, if she scores a 6 on the stress scale, how pairs of high heels with she buy?
 - 3
 - 6
 - 15
 - 24
 - 36
- Given that c varies directly as d , if $c = 10$ when $d = 2$, what is the value of d when $c = 15$?
 - 1
 - $\frac{4}{3}$
 - 2
 - 3
 - 4
- The number of Kardashians is inversely proportional to the time it takes to read an essay. It takes 3 Kardasians 7 hours to read an extended essay analyzing the impact their reality show has had on the lifestyles of woman. How long would it take 5 Kardashians to read the same essay?
 - 2.1 hours
 - 2.4 hours
 - 3.5 hours
 - 4.2 hours
 - 11.6 hours

5. Given that g varies directly as the *square* of h , if $g = 27$ when $h = 3$, what is g when $h = 5$?
- A. 75
 - B. 45
 - C. 32
 - D. 29
 - E. 9
6. Lucas purchases a new compass to find “True North”. The storekeeper tells him that the price of the compass varies inversely with the level of precision. A compass that is 5° off costs \$4.50. How much will a compass that is 2° off cost, in dollars?
- A. \$1.50
 - B. \$2.22
 - C. \$5.55
 - D. \$7.50
 - E. \$11.25
7. Given that p varies inversely as the *cube* of q . If $p = 6$ when $q = 1$, what is the value of p when $q = 2$?
- A. $\frac{3}{4}$
 - B. 3
 - C. 12
 - D. 24
 - E. 48
8. A person’s *body mass index*, BMI, varies directly as the person’s weight in pounds and inversely as the square of the person’s height in feet. If k represents the constant of variation, which of the following expressions represents the BMI of a person who weighs w pounds and is f feet tall?
- A. $\frac{k}{wf^2}$
 - B. $\frac{k w}{f^2}$
 - C. $\frac{k f^2}{w}$
 - D. $\frac{w f^2}{k}$
 - E. $k w f^2$

9. Given that y varies jointly with the *square* of x and the *square root* of z , if $y = 54$ when $x = 3$ and $z = 4$, what is the value of y when $x = 2$ and $z = 25$?
- A. 9.6
 - B. 30
 - C. 60
 - D. 225
 - E. 303.8
10. Let k be a constant of proportionality and let r, s, t , and u be positive real number variables. In which of the following equations does u vary directly with r , directly with the square root of s , and inversely with the square of t ?
- A. $u = \frac{k\sqrt{s}}{rt^2}$
 - B. $u = \frac{kr\sqrt{s}}{t^2}$
 - C. $u = \frac{kr}{\sqrt{st}^2}$
 - D. $u = \frac{kt^2}{r\sqrt{s}}$
 - E. $u = kr\sqrt{st}^2$