

Name _____ Period _____ (08-09 br)

ALGEBRA II 8.1A – DIRECT, INVERSE AND JOINT VARIATION

DIRECT VARIATION – Solve.

1. If y varies directly as x , and $y = 6$ when $x = 4$, find y when $x = 12$.
2. If a is directly proportional to b , and $a = 25$ when $b = 35$, find b when $a = 40$.
3. If w varies directly as z , and $w = 4.5$ when $z = 3$, find z when $w = 1.5$.
4. If p is directly proportional to q^3 , and $p = 3$ when $q = 2$, find p when $q = 4$.
5. If r varies directly as $s + 1$, and $r = 4$ when $s = 5$, find r when $s = 8$.
6. If a varies directly as $3b + 2$, and $a = 10$ when $b = 6$, find b when $a = 7$.
7. If the sales tax on a \$38 purchase is \$2.85, what will the tax be on an \$84 purchase?
8. In a survey, the number of people preferring hot cereal is directly proportional to the total number of people surveyed. One such survey showed that 52 out of 234 people questioned preferred hot cereal to cold cereal. In a school population of 1800, how many people are likely to prefer hot cereal?
9. In real estate, the amount of commission is directly proportional to the price of the property. A real estate agent received a commission of \$2232 on a piece of land that sold for \$124,000. At this rate, what commission will the agent receive for a piece of land that sold for \$160,000?

INVERSE AND JOINT VARIATION – Solve.

10. If y varies inversely as x , and $y = 5$ when $x = 4$, find x when $y = 10$.

11. If p is inversely proportional to q , and $p = 10$ when $q = 5$, find q when $p = 2$.

12. If a is inversely proportional to b , and $b = 12$ when $a = 8$, find b when $a = 3$.

13. If x varies inversely as the square of y , and $x = 2$ when $y = 12$, find y when $x = 8$.

14. If x varies jointly as y and z , and $x = 100$ when $y = 20$ and $z = 10$, find x when $y = 60$ and $z = 30$.

15. If a is jointly proportional to b and c , and $a = 48$ when $b = 6$ and $c = 4$, find c when $a = 540$ and $b = 18$.

16. If l varies jointly as p and r , and $l = 14$ when $p = 100$ and $r = 0.07$, find p when $l = 48$ and $r = 0.08$.

17. If x varies jointly as y and the square root of z , and $x = 20$ when $y = 5$ and $z = 9$, find x when $y = 6$ and $z = 25$.

18. The intensity registered by light varies inversely as the distance the meter is from the light source. A light meter 5.4 m from a light source registers 20 lux. What intensity would it measure 1.8 m from the light source?

19. The frequency of a radio signal varies inversely as the wavelength. A signal of frequency 1250 kilohertz (kHz) has a wavelength of 240 m. What frequency has a signal of wavelength 300 m?