Algebra 2 CP Worksheet Section 9.1   **Name** _____

SHOW ALL WORK AND ANSWERS ON SEPARATE PAPER.

For #'s 1 – 2, y varies directly as x. Write the appropriate direct variation equation. Then find y for the given values of x.

1. $y = 14$ when $x = 2$; find y with x -values: 3, 4, 5
2. $y = 50$ when $x = 100$; find y with x -values: 3, 4, 5

For #'s 3 – 4, y varies inversely as x. Write the appropriate inverse variation equation. Then find y for the given values of x.

3. $y = 10$ when $x = 6$; find y with x -values: 3, 4, 5
4. $y = 0.5$ when $x = 8$; find y with x -values: 3, 4, 5

For #'s 5 – 7, y varies jointly as x and z. Write the appropriate joint variation equation. Then find the missing variable using the given information.

5. $y = -108$ when $x = -4$ and $z = 3$; find y when $x = 6$ & $z = -2$
6. $y = 6$ when $x = 3$ and $z = 4$; find z when $x = 200$ & $y = 25$
7. $y = 20$ when $x = 10$ and $z = \frac{1}{2}$; find x when $y = 24$ & $z = 2$

For #'s 8 – 10, z varies jointly as x and y and inversely as w. Write the appropriate combined variation equation. Then find z for the given values of x, y, and w.

8. $z = 10$ when $x = 5$, $y = -2$, and $w = 3$; find z when $x = 8$, $y = 6$, & $w = -12$
9. $z = 15$ when $x = 10$, $y = 6$, and $w = 20$; find z when $x = 3.5$, $y = 24$, & $w = 27$
10. $z = 36$ when $x = 9$, $y = 10$, and $w = 15$; find z when $x = 20$, $y = 7$, & $w = 20$

For #'s 11 – 12, write a general equation for each problem. Find the constant of variation. Then solve.

11. The variable y varies directly as the square root of x and inversely as z. If $y = 10$ when $x = 9$ and $z = 12$, then find y when $x = 16$ and $z = 10$.
12. The variable x varies jointly as y cubed and the square root of z, and inversely as w. If $= -8$, then $y = 2$, $z = 9$, & $w = 6$. Find z when $x = -30$, $y = 3$, and $w = 9$.