**Algebra 2 CP REVIEW 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=40 $when $x=5$; find $y$ with $x$ -values: 3, 4, 5
2. $y=30 $when $x=120$; 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** $x$**.**

1. $y=5 $when $x=9$; find $y$ with $x$ -values: 3, 4, 5
2. $y=0.25 $when $x=48$; 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.**

1. $y=-96 $when $x=-3$ and $z=4$; find $y$ when $x=\frac{5}{2}$ & $z=-5$
2. $y=10 $when $x=5$ and $z=6$; find $z$ when $x=9$ & $y=27$
3. $y=30 $when $x=-2$ and $z=3$; find $x$ when $y=80$ & $z=4$

**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** $w$**.**

1. $z=9 $when $x=6$, $y=3$, and $w=8$; find $z$ when $x=5$, $y=15$, & $w=-10$
2. $z=8 $when $x=2$, $y=5$, and $w=-10$; find $z$ when $x=0.75$, $y=6$, & $w=2$
3. $z=-16 $when $x=-4$, $y=-2$, and $w=6$; find $z$ when $x=3$, $y=\frac{1}{2}$, & $w=9$

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

1. The variable $y$ varies directly as the cube root of $x$ and inversely as $w$. If $y=12$ when $x=27$ and $w=6$, then find $y$ when $x=8$ and $w=16$.
2. The variable $x$ varies jointly as $y$ squared and the fourth root of $z$, and inversely as $w$. If $=27$ , then $y=3$, $z=16$, & $w=2$. Find $y$ when $x=12$, $z=81$, and $w=27$.