Algebra 2 Worksheet Name_____
Variations: Direct, Inverse, and Joint

Formulas:

Direct Variation	Inverse Variation	Joint Variation
y varies as x	y varies as x	y varies as x and z
$y = kx$	$y = k/x$	$y = kxz$

Translate each statement into a formula. Use k as the constant of variation.
Class:
1. V varies jointly as B and H

2. P varies directly as the square of V and inversely as R

Practice:
3. The mass, M, of a cement block varies jointly as the length, L, width, W, and thickness, T, of the block

4. The volume, V, of a gas varies directly as the temperature, T, and inversely as the pressure, P.

Homework:
5. E varies jointly as M and the square of V.

6. The distance, D, that a free-falling object falls varies directly as the square of the time, T, that it falls.

Solve each of the following:
Class:
7. Find y when $x = -6$, if y varies directly as x and $y = 8$ when $x = 2$.

8. Find y when $x = 3$, if y varies inversely as x and $x = 4$, when $y = 16$.

Practice:
9. Find y when $x = 4$ and $z = 15$, if y varies jointly as x and z when $z = 8$, $y = 80$, and $z = 10$.

10. Find y when $x = 1.5$, if y varies directly as x and $y = -16$ when $x = 6$.

Homework:
11. Find y when $x = 4$, if y varies directly as x and $y = 7$ when $x = 1.5$.

12. Find y when $x = 12$ and $z = 2$, if y varies jointly as x and z and $y = 24$ when $z = 2$ and $x = 1$.

Solve the following word problems: