Honors Algebra 2 Name: _____
NOTES: Direct, Inverse, and Joint Variation Date: _____

Direct Variation	Inverse Variation	Joint Variation

Constant of variation: _____ (also called the constant of proportionality)

Which type variation appears to be linear?

Ex. 1 Write the correct variation equation.

a. The amount m Lucas earns varies directly with h the number of hours he works.

b. The time to complete a project varies inversely with the number of NHS members.

c. The number of gallons g in a circular swimming pool varies jointly with the square of the radius, r^2, and the depth d.

d. The amount of time t needed to build a wall along the highway varies directly with the number of cement blocks c needed and inversely with the number workers w.

Ex. 2
Find the constant of variation. Write the equation.
The volume of gas kept at a constant temperature varies inversely as the pressure p. What is the constant of variation if the volume at 25°C is 25.2 liters and the pressure is 0.925 atm? Write an equation that could be used for the same gas at the same temperature, to find the volume at a different pressure.

When you solve these types of problems there are THREE steps you must show.
#1: find the constant of variation using the initial condition
#2: write the equation
#3: using the equation to answer the question

There will be several of you who will skip step #2 and jump to #3. If you are willing to lose the points, then do as you wish. ☺

Ex 3. The number of centimeters y in a linear measurement varies directly with the number of inches x in the measurement. Morgan's height is 152.4 centimeters or 60 inches. What is Stephanie's height if she is 64 inches tall?

Ex. 4. The value of real state V varies jointly with the neighborhood index N and the square footage of the house S. If $V = \$376.320$ when $N = 96$ and $S = 1600$, find the value of a property with $N = 83$ and $S = 2150$.