**Name:\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Date:\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**

**Honors Chemistry Take-Home Quiz on**

**Reaction Rates, Equilibrium, and Gas Laws**

***\*Answer questions in complete sentences***



1. On the graph above, label range that represents the activation energy of this reaction. (2 pts)

2. On the graph above, draw a line that represent what this graph might look like if a catalyst were added to facilitate the reaction. (2 pts)

\*3. Is this reaction endothermic or exothermic, and how do you know? (4 pts)

\*4. Name five factors that can be used to speed up a chemical reaction. Using your notes, book and/or the internet as a resource, explain a real-life example of reaction rate manipulation. (8 pts)

**For the following chemical equation at equilibrium:**

H2(g) + N2(g) <--> NH3(g)

5. Write the equilibrium expression. (2 pts)

\*6. Name all the ways you could create more product using Le Chatelier’s Principle. (4 pts)

\*7. If the pressure inside a balloon decreases from 100 kPa to 50 kPa at a constant temperature, what happens to the volume and why? (3 pts)

\*8. What must happen to the temperature and pressure of the gas in order to decrease its volume?

(2 pts)

**For the following gas law problems, please use the green formula sheet. Show your work!** (3 pts)

9. If I have a 1.0-liter balloon that holds 2.00 moles at 1.02 atm, what must the temperature be in °C?

10. At a pressure of 1.05 atm and a temperature of 20.°C, a balloon has a volume of 5.0-L. What would the volume be if the pressure and the temperature decreased to 0.65 atm and -15°C, respectively?

11. A 200.-milliliter sample of a gas has a pressure of 1.00 atm. If the volume of the gas is decreased to 50. milliliters at constant temperature, what is the new pressure of the gas?

12. A sample of a gas occupies 6.00 liters at a temperature of 200. K. If the pressure remains constant and the temperature is raised to 600. K, what would the volume of the gas be?