Chemistry 115 Name KEY

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Quiz 8a (20 points) November 24, 2008

1. (6 points) Write a nuclear equation for the indicted decay of each of the following nuclides
	1. Ra-226 by alpha emission

$$\rightarrow +$$

* 1. Pa-234 by beta emission

$$\rightarrow +$$

1. (6 points) Fill in the missing particles in each of the following nuclear equations
	1. $+ \rightarrow $
	2. $+ \rightarrow $
2. (5 points) Polonium-218 is an alpha emitter with a half-life of 3.0 minutes. How long will it take for a 512 g sample of polonium to decay to 1 gram?

$$512g\overset{1}{\overbrace{\rightarrow }}256g\overset{2}{\overbrace{\rightarrow }}128g\overset{3}{\overbrace{\rightarrow }}64g\overset{4}{\overbrace{\rightarrow }}32g\overset{5}{\overbrace{\rightarrow }}16g\overset{6}{\overbrace{\rightarrow }}8g\overset{7}{\overbrace{\rightarrow }}4g\overset{8}{\overbrace{\rightarrow }}2g\overset{9}{\overbrace{\rightarrow }}1g$$

It will take 9 half lives to decay to 1 g. 27 minutes.

1. (3 points) On the basis of kinetic-molecular theory, explain why vapor pressure increases with temperature.

As the temperature increases, more molecules have enough energy to escape to the vapor phase and the vapor pressure increases.