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| Review #2  East.H.S. ©λ€M|5+rγ  visit http://genest.weebly.com | http://www.sprouls.com/blog/wp-content/uploads/2014/09/obama-lg.jpg | Name\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_  Date\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_  Come for assistance and cheerful encouragement after school Tues, Thurs, and every day at lunch |

1. What day is the test? \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Are there re-takes? \_\_\_\_\_\_\_\_\_\_\_\_ Is it open notes? \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Can you use your own non-graphing calculator?

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| The following numbers will always be given to you and don't need to be memorized: |  |
| **°celsius + 273 = kelvins**  **760. torr = 760. mmHg = 1.000 atm = 101.3 kPa** | |

1. Why do barometers contain mercury, rather than water or another fluid.
2. There are many correct answers to the following question. Name a place on Earth where the ambient pressure is usually more than in Madison
3. Name a place on Earth where the ambient pressure is usually less than in Madison.
4. Name and draw the device we use to measure atmospheric pressure. **Label the part of it that is usually 760. mmHg when at sea level.**

In Figure 4 below, a graph shows the relationship between mass and volume for two substances, A and B. Use the graph to answer questions about these two substances.

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| 1. The diagram at right shows a manometer connected to a flask. The mercury levels are measured in mm. The pressure in the room is 745 mm Hg. Determine the pressure of the gas in the flask. Show work. | manometer-1 |

1. Convert 33 kelvins to °C.
2. Convert 100 °C to kelvins.
3. Convert -100 °C to kelvins.

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|  | **Two Pan Balance**  **A B** |

1. You have built a simple two-pan balance shown above to compare the masses of substances **A** and **B**. What would happen to the balance if you put **equal masses** of **A** and **B** in the two pans? **Equal volumes** of **A** and **B** in the two pans? Explain your reasoning.

b) Find the slope of the line for both A and B using correct units. State the physical meaning of the slope for each substance.

c) If you put **10.0 mL of A** in one balance pan, what **mass of B** would you need in the other pan to make it balance? Explain your reasoning.

d) If you put **35.0 mL of B** in one balance pan, what **volume of A** would you need in the other pan to make it balance? Explain your reasoning.

e) Water has a density of 1.00 g/mL. Sketch the line representing water onto the graph in Figure 4.

f) Determine whether substance A and B will sink or float when placed in a bucket of water.

b

**A**: sink float **B**: sink float (circle correct response)

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| 1. If two variables are directly related they will look like graph number \_\_\_\_\_\_\_\_\_ 2. If two variables are directly related they will look like graph number \_\_\_\_\_\_\_\_\_ 3. A graph of pressure vs number of gas molecules would look like graph number \_\_\_\_\_\_ |  |

1. When temperature increases, what else increases? \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
2. What temperature is absolute zero in Kelvins? \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ In degrees Celsius? \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
3. Which will double the kinetic energy of a block of aluminum, going from 300 °C to 600°C or going from 300K to 600K.
   1. neither
   2. doubling the Celsius
   3. doubling the kelvins
   4. both
4. If you know that the freezing point of pure titanium is 1668 °C, what do you know about the melting point?
5. If a beachcomber finds one copper penny every 355 minutes, and copper pennies have a mass of 2.48 grams, how many grams of copper will the beachcomber find in 7.25 hours?

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| You may find the following  information useful. | silicon mp = 1414 °C bp = 3265°C  neon mp = -249°C bp = -246°C (note the negative)  gallium mp = 30°C bp = 2400°C |

1. Draw ten particles of each substance at the indicated temperature. Use what you learned in the computer lab and in our cartoon videos (you may re-view these cartoons at the class website. There will be true-false questions on Friday’s test covering these videos:

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| Neon at -247 °C |  | Neon at -250 °C |