

Ch. 17 – Temperature, Heat & Energy Test Review

It would be wise to have these formulas on your cheat sheet:

$$^{\circ}\text{C} = \text{K} - 273 \quad ^{\circ}\text{C} = \frac{5}{9} (^{\circ}\text{F} - 32) \quad \text{K} = ^{\circ}\text{C} + 273 \quad ^{\circ}\text{F} = \frac{9}{5} ^{\circ}\text{C} + 32$$

$$Q = mc\Delta T \quad m = \frac{Q}{c\Delta T} \quad c = \frac{Q}{m\Delta T} \quad \Delta T = \frac{Q}{mc} \quad \Delta H = \text{Heat}_{\text{products}} - \text{Heat}_{\text{reactants}}$$

To study for this test, make sure you have done the following things:

- 1) Review the vocabulary flashcards:
- 2) Make sure you have watched the “flip” videos for Unit 9. Review your individual or group video quizzes
- 3) Review everything on daily assignments we did in class: Methods of Heat Transfer, Temperature conversions, Heat Transfer Calculations, Specific Heat Practice Problems, & Heat of Reactants.
- 4) Complete this review and check your answers with someone else. Study with a study-buddy.

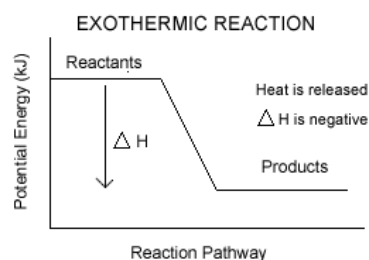
Please make sure you know the following concepts.

1. What is the difference between heat and temperature?
2. What are 2 units for heat?
3. Which direction does heat flow?
4. Heat can be transferred 3 ways. What are they and describe them?
Feel free to label and use the picture. You might want to review the video if you either never watched it or forgot it.



5. What are the 3 units for temperature? (Be able to convert between all 3 temp units.)
6. Which 2 scales have the same amount of change if they temperature changes 1°?
7. Can you convert between all the temperature scales?
 - a. Convert 345 K to Celsius.
 - b. Convert 550 °C to K.
 - c. Convert 76 °F to Celsius.
 - d. Convert 900 °F to Kelvin.

8. Which scale has “absolute zero” and what does “absolute zero” mean?
9. Temperature can be what 3 things? *(look on the temperature conversion worksheet, page 2)*
10. What is specific heat capacity?
11. Equal masses of Water ($4.184 \text{ J/g} \cdot ^\circ\text{C}$) and Aluminum ($0.9 \text{ J/g} \cdot ^\circ\text{C}$) are both exposed to 1000 J of heat. Which one heats up more? Why?
12. How much heat is absorbed by 200g of water if it changed from 35°C to 67°C ?
13. What is the specific heat of a material that has a mass of 88 g and absorbed 238 J of energy when it was heated from 11°C to 25°C ?
14. What is the final temperature of a 150 g block of aluminum ($c = 0.9 \text{ J/g} \cdot ^\circ\text{C}$) that cools and releases 561 J of heat. The block was initially measured to be 145°C .
15. What is ΔH ? Make sure you understand that the heat of formation is for various compounds (they will be provided in a chart). Review the Heat of reactants assignment for practice problems to solve for ΔH .
16. Explain what is happening in this graph.



What about this one?

