Thermochemistry Review (Chapter 17)

1. Explain the difference between exothermic and endothermic. How would each “feel” to you?
2. What is the difference between temperature & heat? What are the units that we use for heat?
3. On what law does calorimetry (experiments involving heat exchange) depend on? (hint: think about our labs)
4. What is specific heat? What are the usual units for specific heat? What about heat of fusion and vaporization?
5. What type of energy changes during a phase change? What type of energy changes what temperature changes?
6. The specific heat of a metal is 1.35 J/g°C. Calculate the energy required to raise 30.5 grams of the metal 11.5°C.
7. A piece of unknown metal with a mass of 33.5 grams is heated to 65.5°C and placed in 195 mL of 10.8°C water. The final temperature of the mixture is 21.0°C. What is the specific heat of the metal? (J/g°C)
8. How much heat is required to heat 100.0g of water from 55.0°C to 155°C?(*H* = 6.01 kJ/mol *H* = 40.7 kJ/mol) (Specific heat of water vapor = 1.9 J/g°C)
9. 200.0 grams of ethanol (C2H5OH), is burned and 2355 kJ of heat is produced, what is the heat of combustion in kJ/mol for ethanol?
10. What mass of propane, C3H8 must be burned in order to produce 76,000 kJ of energy? C3H8 + 5O2 🡪 3CO2 + 4H2O Δ*H =* -2200 kJ