Unit 10: Heat of Reactions Practice

Checklist:

- ✓ Is the equation given?
- ✓ Is it balanced?
- ✓ Which element/compound does the problem give a mass for?
- ✓ How many moles of that substance are in the balanced equation? How many grams is that?
- ✓ Set up a proportion or t-chart. What is given? What should you have in a perfect world? We have perfect heat, find the actual heat.

How much heat will be released when 6.44g of sulfur reacts with excess O_2 according to the following equation?

$$2S + 3O_2 \rightarrow 2SO_3$$
 $\Delta H^{\circ} = -791.4 \text{ kJ}$

How much heat will be released when 4.72g of carbon reacts with excess O_2 according to the following equation?

$$C + O_2 \rightarrow CO_2$$
 $\Delta H^\circ = -393.5 \text{ kJ}$

How much heat will be absorbed when 38.2g of bromine reacts with excess H_2 according to the following equation?

$$H_2 + Br_2 \rightarrow 2HBr$$
 $\Delta H^\circ = 72.80 \text{ kJ}$

How much heat will be released when 1.48g of chlorine reacts with excess phosphorus according to the following equation?

$$2P + 5Cl_2 \rightarrow 2PCl_5$$
 $\Delta H^{\circ} = -886 \text{ kJ}$

How much heat will be released when 4.77g of ethanol (C_2H_5OH) reacts with excess O_2 according to the following equation?

$$C_2H_5OH + 3O_2 \rightarrow 2CO_2 + 3H_2O$$

 $\Delta H^{\circ} = -1366.7 \text{ kJ}$