CHEM 0101 Name _____
Fall 2009 (12/2)

Quiz 3

1. a. (10 pts) Determine the amount of energy released when 2700 g of gasoline (C_8H_{18}), approximately 1 gallon, is burned.

$$C_8H_{18}(g) + 12.5\ O_2(g) \longrightarrow 8\ CO_2(g) + 9\ H_2O(g) \qquad \Delta H \approx -1012\ kJ/mol$$

b. (10 pts.) Determine the mass of CO_2 released during the reaction.

2. (10 pts.) Determine the mass of CO_2 produced when enough CH_4 is burned to release the same amount of energy as released in part 1.a.

$$CH_4(g) + 2\ O_2(g) \longrightarrow CO_2(g) + 2\ H_2O(g) \qquad \Delta H = -802.3\ kJ/mol$$

3. (10 pts.) Compare the two fuels. When the same amount of energy is released by each reaction, which fuel produces more CO_2? Explain.

4. (10 pts.) List three other things you might consider in addition to the amount of CO_2 a fuel produces when choosing a fuel for a vehicle that you are producing.