

Section 3C Review

Name _____

1) Explain the difference between endothermic and exothermic reactions. Draw a rough sketch of a graph of each.

2) In terms of energy gain and release, explain how breaking and building bonds differ.

3) Explain what a limiting reactant is.

4) Write out balanced equations for the combustion of:

a) Methane

b) Ethane

c) Hexane

d) Decane

5) Use the following equation to answer the questions below.



a) If 4 moles of C_7H_{16} are burned, how much energy will be released?

b) If 8 moles of C_7H_{16} are burned, how many moles of water will be produced?

c) How many moles of oxygen are needed to react completely with 10 moles of C_7H_{16} ?

d) If you have 10 moles of C_7H_{16} , 200 moles O_2 , 20 moles CO_2 , and 300 moles H_2O , which is your limiting reactant?

6) If the molar heat of combustion of a fuel is 1200. kJ/mol and 4 moles of the fuel is burned, what is the total number of kilojoules of energy produced?

7) Explain what incomplete combustion means.

8) List several things that cause an increase of carbon dioxide in the atmosphere. Explain why this is a problem.

9) If 25 grams of water is heated from 28°C to 49°C, how much heat is gained by the water? (Specific heat of water = 4.2 joules/gram °C) Use the equation: thermal energy = mass of water x 4.184 x change in temperature of the water. Show all work.

10) How much heat is produced by the combustion of 200.0 grams of hexane? The heat combustion of hexane is 48.2 kJ/gram.

11) If 3000 joules are released as 0.55 g of paraffin wax burns, what is the heat of combustion in kilojoules per gram?