

REVIEW QUESTIONS
Chapter 7

Calculate each of the following quantities:

1. Number of moles in 112 g of aspirin, $C_9H_8O_4$

$$112 \text{ g} \times \frac{1 \text{ mol}}{180.17 \text{ g}} = 0.622 \text{ mol}$$

2. Mass of 3.82 moles of silver acetate, $AgC_2H_3O_2$

$$3.82 \text{ mol} \times \frac{166.92 \text{ g}}{1 \text{ mol}} = 638 \text{ g}$$

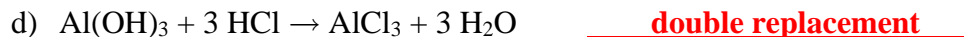
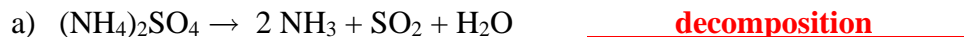
3. Number of molecules in 1.75 moles of CO_2

$$1.75 \text{ mol } CO_2 \times \frac{6.02 \times 10^{23} \text{ molecules}}{1 \text{ mol}} = 1.05 \times 10^{24} \text{ molecules}$$

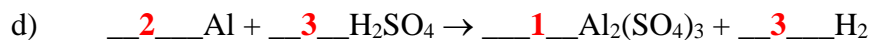
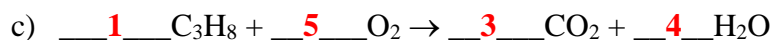
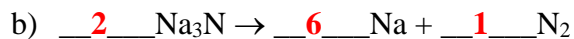
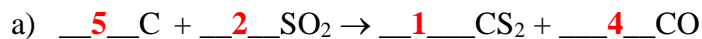
4. Number of molecules in 20.0 g of CH_4

$$20.0 \text{ g } CH_4 \times \frac{1 \text{ mol}}{16.05 \text{ g}} \times \frac{6.02 \times 10^{23} \text{ molecules}}{1 \text{ mol}} = 7.50 \times 10^{23} \text{ molecules}$$

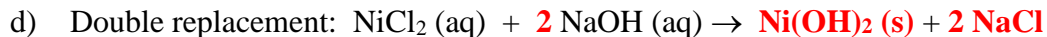
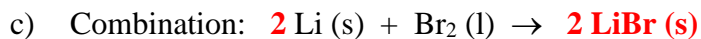
5. Classify the type of each of the following reactions:



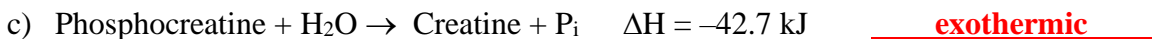
6. Balance each of the equations shown below:



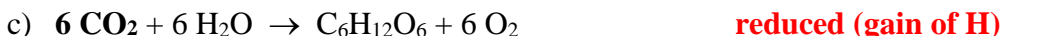
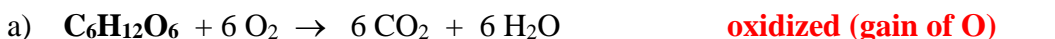
7. Predict the products and write a balanced equation for each of the following:



8. Each of the reactions below occur in the cells of the body. Identify each as endothermic or exothermic:



9. In each reaction below, identify the **bold type** substance as oxidized or reduced:



10. Chromium and oxygen combine to form chromium (III) oxide.

a) Write a balanced equation for this reaction.



b) How many moles of O₂ react with 4.50 mol of Cr?

$$4.50 \text{ mol Cr} \times \frac{3 \text{ mol O}_2}{4 \text{ mol Cr}} = 3.38 \text{ mol O}_2$$

c) How many grams of chromium (III) oxide are formed when 24.8g of Cr react?

$$24.8 \text{ g Cr} \times \frac{1 \text{ mol}}{52.00 \text{ g}} \times \frac{2 \text{ mol Cr}_2\text{O}_3}{4 \text{ mol Cr}} \times \frac{152.00 \text{ g}}{1 \text{ mol}} = 36.2 \text{ g Cr}_2\text{O}_3$$