Stoichiometry Problems

Use the following balanced equation to complete the problems below.

$$2 \, C_2H_6 \, (g) \; + \; 7 \, O_2 \, (g) \; \rightarrow \; 4 \, CO_2 \, (g) \; + \; 6 \, H_2O \, (g)$$

1. How many moles of CO_2 are produced when 5.0 moles of O_2 are consumed?

2. How many moles of O_2 are needed to completely react with 5.0 moles of C_2H_6?

3. How many moles of H_2O are produced when 38.0 grams of C_2H_6 are consumed?

4. How many grams of CO_2 are produced when 2.5 moles of O_2 are consumed?

5. How many moles of C_2H_6 are required to produce 112 grams of CO_2?

6. How many grams of O_2 are required to produce 1.5 moles of H_2O?

7. How many grams of O_2 are required if 1.50 grams of C_2H_6 are completely consumed?

8. How many grams of CO_2 are produced when 18.5 grams of O_2 are consumed?

Definitions	Word Bank
	Mole
_____ 1. The starting material in a chemical reaction.	
	Stoichiometry
_____ 2. A conversion factor derived from the coefficients of a balanced chemical equation interpreted in terms of moles.	
	Mass-mass calculation
_____ 3. The maximum amount of product that could be formed in a reaction.	
	Reactants
_____ 4. The amount of a substance that contains 6.02×10^{23} representative particles of that substance.	
	Excess reagent
_____ 5. The substance completely used up in a chemical reaction.	
	Theoretical yield
_____ 6. The ratio of how much product is produced compare to how much is expected, expressed as a percentage.	
	Limiting reagent
_____ 7. The calculations of quantities in a chemical reaction.	
	Mole ratio
_____ 8. The actual amount of product in a chemical reaction.	
_____ 9. The substance left over after a reaction takes place.	Actual yield
_____ 10. A stoichiometric computation in which the mass of a product is determined from the given mass of reactants.	Percent yield