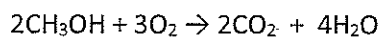


Preliminary Quiz
Stoichiometric Ratios

Methanol burns in oxygen



I	50	?		
S	-50	-75	50	100
E	0	?		

All Questions on this sheet MUST be answered with factor label work including units.

1. If a student has 50 Methanol molecules,
a. How many O_2 molecules will she need?

$$\frac{50}{1} \times \frac{3 \text{ O}_2}{2} = 75 \text{ O}_2 \text{ needed}$$

- b. How many CO_2 molecules will she get?

$$\frac{50}{1} \times \frac{2 \text{ CO}_2}{2} = 50 \text{ CO}_2 \text{ get}$$

- c. How many H_2O molecules will she get?

$$\frac{50}{1} \times \frac{4 \text{ H}_2\text{O}}{2} = 100 \text{ H}_2\text{O}$$

- d. Using your data from the 3 previous questions,

- i. Fill out the ISE table above
ii. What is the limiting reactant?

CH_3OH

2. If she burned 2 moles of methanol in excess oxygen,

- a. How much mass of ethanol is this?

$$\text{CH}_3\text{OH} = 32 \text{ g/mol} \times 2 = 64 \text{ g}$$

- b. How many moles of water would be produced assuming excess oxygen?

$$\frac{64 \text{ g}}{32 \text{ g}} \times \frac{4 \text{ H}_2\text{O}}{2 \text{ CH}_3\text{OH}} = 4 \text{ mol H}_2\text{O}$$