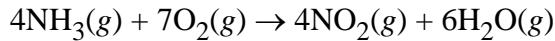


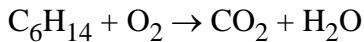
Worksheet: Stoichiometry III

Refer to the following equation:



1. How many moles of ammonia will be required to produce 10.0 mol of water?
[A] 5.00 mol [B] 4.00 mol [C] 6.67 mol [D] 10.0 mol [E] none of these
2. How many molecules of NO_2 are produced when 1 mol of ammonia is completely reacted?
[A] 46 [B] 12.044×10^{23} [C] 4 [D] 6.022×10^{23} [E] none of these
3. How many molecules of water are produced for each mole of NO_2 given off?
[A] 12.044×10^{23} [B] 9.033×10^{23} [C] 18
[D] 6.022×10^{23} [E] none of these
4. In the reaction $\text{N}_2(\text{g}) + 3\text{H}_2(\text{g}) \rightarrow 2\text{NH}_3(\text{g})$, how many moles of ammonia would be produced from 1.0 mol of hydrogen and excess nitrogen?
[A] 0.67 mol [B] 2.0 mol [C] 3.0 mol [D] 0.33 mol [E] 1.3 mol

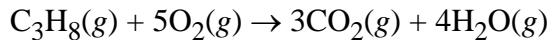
Refer to the following unbalanced equation:



5. When balanced in standard form (smallest whole numbers), the coefficient for CO_2 is
[A] 8 [B] 6 [C] 14 [D] 10 [E] 12
6. What mass of oxygen (O_2) is required to react completely with 25.0 g of C_6H_{14} ?
[A] 608 g [B] 32.0 g [C] 88.2 g [D] 16.0 g [E] 9.28 g
7. What mass of carbon dioxide (CO_2) can be produced from 25.0 g of C_6H_{14} and excess oxygen?
[A] 44.0 g [B] 76.6 g [C] 528 g [D] 264 g [E] 12.8 g

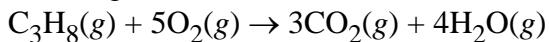
Worksheet: Stoichiometry III

8. How many molecules of carbon dioxide would be formed if 6.75 g of propane is burned in the following reaction?



- [A] 5.54×10^{23} molecules [B] 2.77×10^{23} molecules [C] 1.39×10^{23} molecules
[D] 20.3×10^{23} molecules [E] 3.89×10^{23} molecules

9. What mass of oxygen would be required to completely burn 6.75 g of propane in the following reaction?



- [A] 49.0 g O₂ [B] 122 g O₂ [C] 77.4 g O₂ [D] 24.5 g O₂ [E] 33.8 g O₂

10. Calculate the moles of oxygen needed to react with 11.2 g of octane, C₈H₁₈, in the following reaction.



- [A] 1.23 mol O₂ [B] .615 mol O₂ [C] 2.46 mol O₂
[D] 3.15 mol O₂ [E] 140. mol O₂

11. Calculate the mass of carbon dioxide produced from 11.2 g of octane, C₈H₁₈, in the following reaction.



- [A] 34.5 g CO₂ [B] 46.2 g CO₂ [C] 89.6 g CO₂
[D] 17.3 g CO₂ [E] 58.9 g CO₂

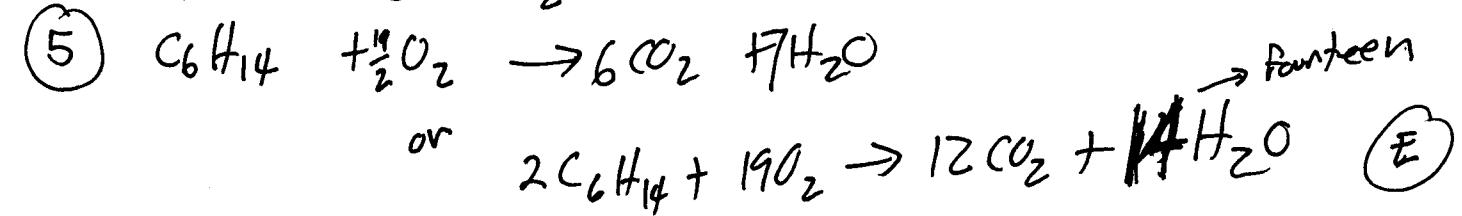
Worksheet: Stoichiometry III

① $10.0 \text{ mol H}_2\text{O} \times \frac{4 \text{ mol NH}_3}{6 \text{ mol H}_2\text{O}} = \underline{\underline{6.67 \text{ mol NH}_3}} \quad (\text{C})$

② $1 \text{ mol NH}_3 \times \frac{4 \text{ mol NO}_2}{4 \text{ mol NH}_3} \times \frac{6.02 \times 10^{23} \text{ molecules NO}_2}{1 \text{ mol NO}_2} = \underline{\underline{6.02 \times 10^{23} \text{ molecules}}} \quad (\text{D}) \leftarrow \text{NO}_2$

③ ~~$1 \text{ mol NO}_2 \times \frac{6 \text{ mol H}_2\text{O}}{4 \text{ mol NO}_2} \times \frac{6.02 \times 10^{23} \text{ molecules H}_2\text{O}}{1 \text{ mol H}_2\text{O}} = \underline{\underline{9.03 \times 10^{23} \text{ molecules H}_2\text{O}}} \quad (\text{B}) \leftarrow \text{H}_2\text{O}$~~

④ $1.0 \text{ mol H}_2 \times \frac{2 \text{ mol NH}_3}{3 \text{ mol H}_2} = \underline{\underline{0.67 \text{ mol NH}_3}} \quad (\text{A})$



⑥ $25.0 \text{ g C}_6\text{H}_{14} \times \frac{1 \text{ mol C}_6\text{H}_{14}}{86.14 \text{ g C}_6\text{H}_{14}} \times \frac{19 \text{ mol O}_2}{2 \text{ mol C}_6\text{H}_{14}} \times \frac{32 \text{ g O}_2}{1 \text{ mol O}_2} = \underline{\underline{\frac{88.8 \text{ g O}_2}{1 \text{ mol O}_2}}} \quad (\text{C})$
 $\rightarrow (12 \times 6) = 72$
 $+ (14 \times 1) = 14.14$

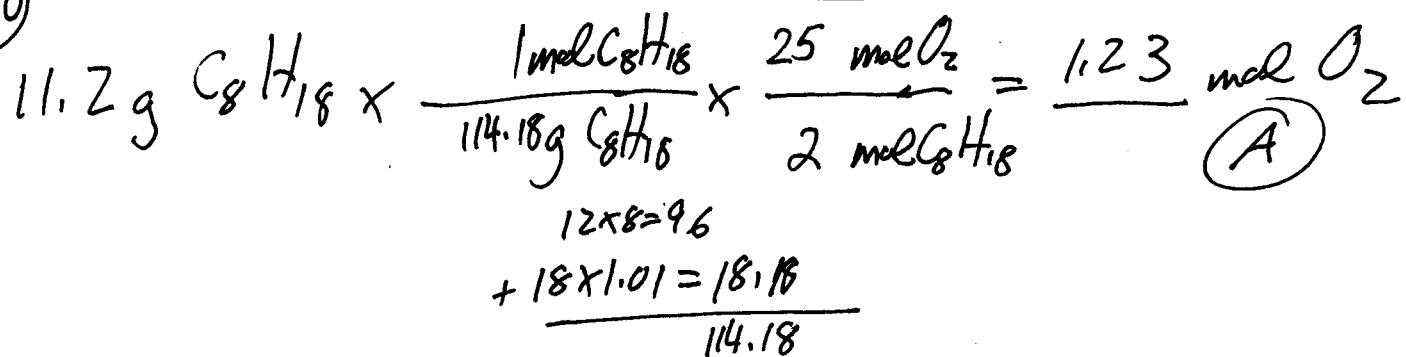
⑦ $25.0 \text{ g C}_6\text{H}_{14} \times \frac{1 \text{ mol C}_6\text{H}_{14}}{86 \text{ g C}_6\text{H}_{14}} \times \frac{12 \text{ mol CO}_2}{2 \text{ mol C}_6\text{H}_{14}} \times \frac{44 \text{ g O}_2}{1 \text{ mol CO}_2} = \underline{\underline{76.6 \text{ g CO}_2}} \quad (\text{B})$

⑧ $6.75 \text{ g C}_3\text{H}_8 \times \frac{1 \text{ mol C}_3\text{H}_8}{44.08 \text{ g C}_3\text{H}_8} \times \frac{3 \text{ mol CO}_2}{1 \text{ mol C}_3\text{H}_8} \times \frac{6.02 \times 10^{23} \text{ molecules CO}_2}{1 \text{ mol CO}_2} = \underline{\underline{\frac{2.77 \times 10^{23} \text{ molecules CO}_2}{1 \text{ mol CO}_2}}} \quad (\text{B})$

⑨ $6.75 \text{ g C}_3\text{H}_8 \times \frac{1 \text{ mol C}_3\text{H}_8}{44.08 \text{ g C}_3\text{H}_8} \times \frac{5 \text{ mol O}_2}{1 \text{ mol C}_3\text{H}_8} \times \frac{32.0 \text{ g O}_2}{1 \text{ mol O}_2} = \underline{\underline{24.5 \text{ g O}_2}} \quad (\text{D})$

Wkshp, Stoich III

(10)



(11)

