

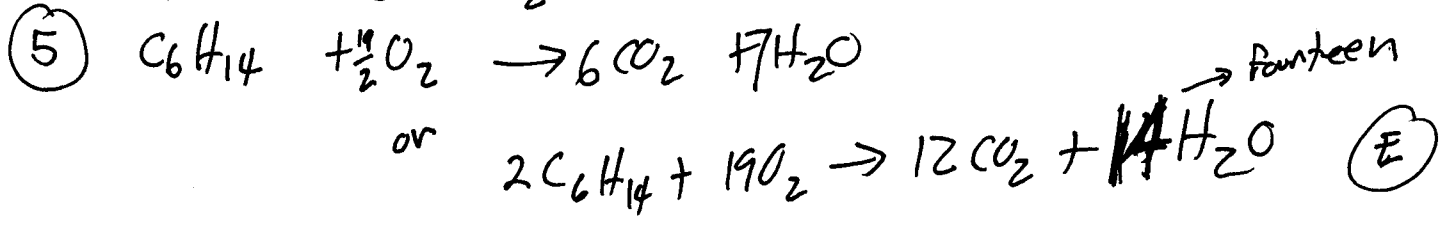
Worksheet: Stoichiometry III

① 10.0 mol H₂O × $\frac{4 \text{ mol NH}_3}{6 \text{ mol H}_2\text{O}}$ = 6.67 mol NH₃ (C)

② 1 mol NH₃ × $\frac{4 \text{ mol NO}_2}{4 \text{ mol NH}_3}$ × $\frac{6.02 \times 10^{23} \text{ molecules NO}_2}{1 \text{ mol NO}_2}$ = $\frac{6.02 \times 10^{23} \text{ molecules NO}_2}{1}$ (D) ← NO₂

③ ~~1 mol NO₂~~ 1 mol NO₂ × $\frac{6 \text{ mol H}_2\text{O}}{4 \text{ mol NO}_2}$ × $\frac{6.02 \times 10^{23} \text{ molecules H}_2\text{O}}{1 \text{ mol H}_2\text{O}}$ = $\frac{9.03 \times 10^{23} \text{ molecules H}_2\text{O}}{1}$ (B) ← H₂O

④ 1.0 mol H₂ × $\frac{2 \text{ mol NH}_3}{3 \text{ mol H}_2}$ = 0.67 mol NH₃ (A)



⑥ 25.0 g C₆H₁₄ × $\frac{1 \text{ mol C}_6\text{H}_{14}}{86.14 \text{ g C}_6\text{H}_{14}}$ × $\frac{19 \text{ mol O}_2}{2 \text{ mol C}_6\text{H}_{14}}$ × $\frac{32 \text{ g O}_2}{1 \text{ mol O}_2}$ = $\frac{88.8 \text{ g O}_2}{1}$ (C) ←
 → (12 × 6) = 72
 + (14 × 1) = 14.14

⑦ 25.0 g C₆H₁₄ × $\frac{1 \text{ mol C}_6\text{H}_{14}}{86 \text{ g C}_6\text{H}_{14}}$ × $\frac{12 \text{ mol CO}_2}{2 \text{ mol C}_6\text{H}_{14}}$ × $\frac{44 \text{ g CO}_2}{1 \text{ mol CO}_2}$ = 76.6 g CO₂ (B)

⑧ 6.75 g C₃H₈ × $\frac{1 \text{ mol C}_3\text{H}_8}{44.08 \text{ g C}_3\text{H}_8}$ × $\frac{3 \text{ mol CO}_2}{1 \text{ mol C}_3\text{H}_8}$ × $\frac{6.02 \times 10^{23} \text{ molecules CO}_2}{1 \text{ mol CO}_2}$ = $\frac{2.77 \times 10^{23} \text{ molecules CO}_2}{1}$ (B)

⑨ 6.75 g C₃H₈ × $\frac{1 \text{ mol C}_3\text{H}_8}{44.08 \text{ g C}_3\text{H}_8}$ × $\frac{5 \text{ mol O}_2}{1 \text{ mol C}_3\text{H}_8}$ × $\frac{32.0 \text{ g O}_2}{1 \text{ mol O}_2}$ = 24.5 g O₂ (D)

Wksht, Stoich III

(10)

$$11.2 \text{ g } C_8H_{18} \times \frac{1 \text{ mol } C_8H_{18}}{114.18 \text{ g } C_8H_{18}} \times \frac{25 \text{ mol } O_2}{2 \text{ mol } C_8H_{18}} = \frac{1.23 \text{ mol } O_2}{A}$$

$12 \times 8 = 96$
 $+ 18 \times 1.01 = 18.18$

 114.18

(11)

$$11.2 \text{ g } C_8H_{18} \times \frac{1 \text{ mol } C_8H_{18}}{114.18 \text{ g } C_8H_{18}} \times \frac{16 \text{ mol } CO_2}{2 \text{ mol } C_8H_{18}} \times \frac{44 \text{ g } CO_2}{1 \text{ mol } CO_2} = \frac{34.5 \text{ g } CO_2}{A}$$