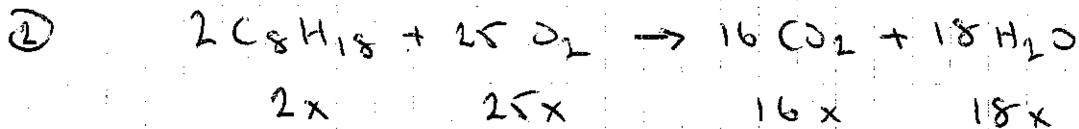
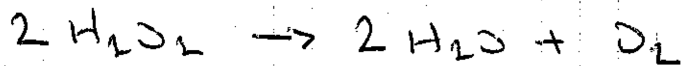


## Stoichiometry WS #2

- ①  $0.04 \text{ H}_2\text{O}_2 \rightarrow 0.04 \text{ H}_2\text{O} + 0.02 \text{ O}_2$   
 multiply everything by 50 to get whole number coefficients



a)  $\text{C}_8\text{H}_{18} = 2x = 4 \text{ mol}$

$$x = \frac{4}{2} = 2 \text{ mol}$$

$$\text{O}_2 = 25x = 25(2) = \boxed{50 \text{ mol}}$$

b)  $\text{C}_8\text{H}_{18} = 2x = 1 \text{ mol}$

$$x = \frac{1}{2} = 0.5 \text{ mol}$$

$$\text{CO}_2 = 16x = 16(0.5) = \boxed{8 \text{ mol}}$$

c)  $\text{C}_8\text{H}_{18} = 2x = 6 \text{ mol}$

$$x = \frac{6}{2} = 3 \text{ mol}$$

$$\text{H}_2\text{O} = 18x = 18(3) = \boxed{54 \text{ mol}}$$

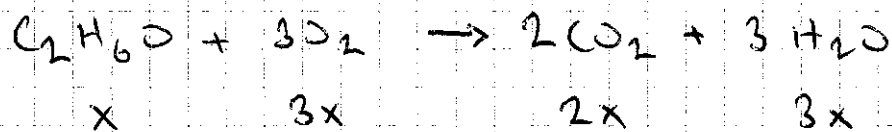
d)  $\text{CO}_2 = 16x = 8 \text{ mol}$

$$x = \frac{8}{16} = 0.5 \text{ mol}$$

$$\text{O}_2 = 25x = 25(0.5) = \boxed{12.5 \text{ mol}}$$

$$\text{C}_8\text{H}_{18} = 2x = 2(0.5) = \boxed{1 \text{ mol}}$$

③



a)  $\text{C}_2\text{H}_6\text{O} = x = 25 \text{ mol}$

$$\text{O}_2 = 3x = 3(25) = \boxed{75 \text{ mol}}$$

b)  $\text{O}_2 = 3x = 30 \text{ mol}$

$$x = \frac{30}{3} = 10 \text{ mol}$$

$$\text{C}_2\text{H}_6\text{O} = x = \boxed{10 \text{ mol}}$$

$$\text{CO}_2 = 2x = 2(10) = \boxed{20 \text{ mol}}$$

c)  $\text{CO}_2 = 2x = 23 \text{ mol}$

$$x = \frac{23}{2} = 11.5 \text{ mol}$$

$$\text{O}_2 = 3x = 3(11.5) = \boxed{34.5 \text{ mol}}$$

d)  $\text{H}_2\text{O} = 3x = 41 \text{ mol}$

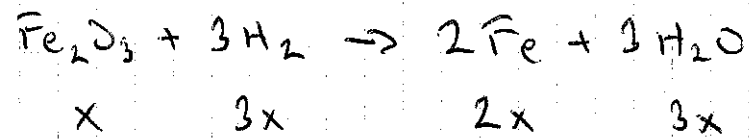
$$x = \frac{41}{3} = 13.\bar{6} \text{ mol}$$

$$\text{C}_2\text{H}_6\text{O} = x = \boxed{13.\bar{6} \text{ mol}}$$

$$\text{O}_2 = 3x = 3(13.\bar{6}) = \boxed{41 \text{ mol}}$$

$$\text{CO}_2 = 2x = 2(13.\bar{6}) = \boxed{27.\bar{3} \text{ mol}}$$

④



$$\text{a) } \text{Fe}_2\text{O}_3 = x = 25 \text{ mol}$$

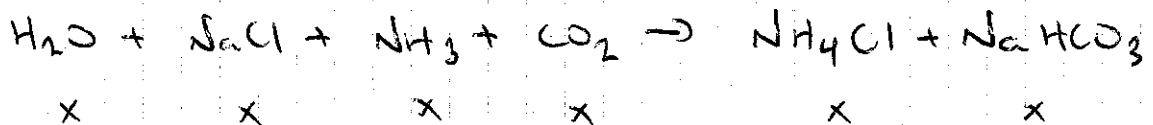
$$\text{Fe} = 2x = 2(25) = \boxed{50 \text{ mol}}$$

$$\text{b) } \text{Fe} = 2x = 30 \text{ mol}$$

$$x = \frac{30}{2} = 15 \text{ mol}$$

$$\text{H}_2 = 3x = 3(15) = \boxed{45 \text{ mol}}$$

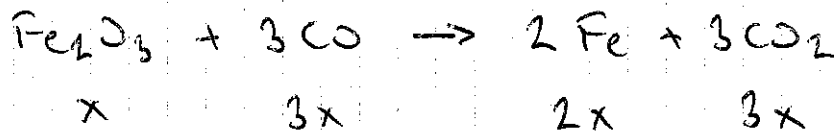
⑤



$$\text{NaCl} = x = 100 \text{ mol}$$

$$\text{NaHCO}_3 = x = \boxed{100 \text{ mol}}$$

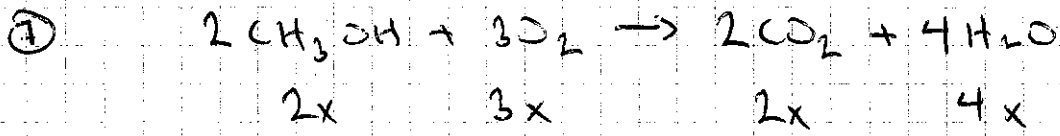
⑥



$$\text{CO} = 3x = 18 \text{ mol}$$

$$x = \frac{18}{3} = 6 \text{ mol}$$

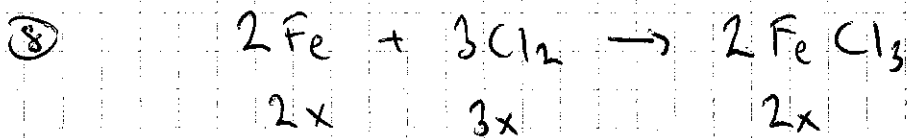
$$\text{Fe} = 2x = 2(6) = \boxed{12 \text{ mol}}$$



$$\text{O}_2 = 3x = 6 \text{ mol}$$

$$x = \frac{6}{3} = 2 \text{ mol}$$

$$\text{H}_2\text{O} = 4x = 4(2) = \boxed{8 \text{ mol}}$$



$$\text{a) } \text{Cl}_2 = 3x = 24 \text{ mol}$$

$$x = \frac{24}{3} = 8 \text{ mol}$$

$$\text{FeCl}_3 = 2x = 2(8) = \boxed{16 \text{ mol}}$$

$$\text{b) } \text{Cl}_2 = 3x = 24$$

$$x = \frac{24}{3} = 8 \text{ mol}$$

$$\text{Fe} = 2x = 2(8) = \boxed{16 \text{ mol}}$$

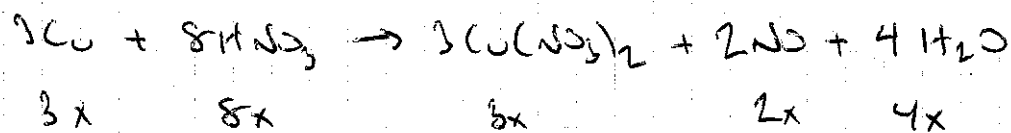
$$\text{c) } \text{Fe} = 2x = 0.5 \text{ mol}$$

$$x = \frac{0.5}{2} = 0.25 \text{ mol}$$

$$\text{Cl}_2 = 3x = 3(0.25) = \boxed{0.75 \text{ mol}}$$

$$\text{FeCl}_3 = 2x = 2(0.25) = \boxed{0.5 \text{ mol}}$$

⑨

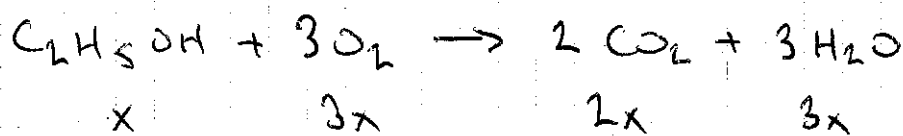


$$\text{Cu} = 3x = 2.56 \text{ mol}$$

$$x = \frac{2.56}{3} = 0.853 \text{ mol}$$

$$\text{HNO}_3 = 8x = 8(0.853) = \boxed{6.83 \text{ mol}}$$

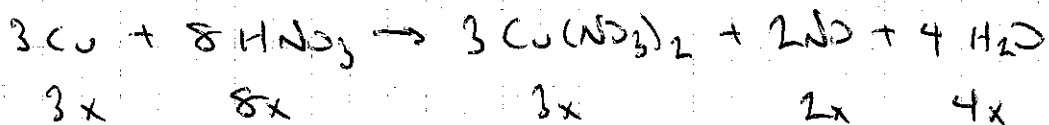
⑩



$$\text{C}_2\text{H}_5\text{OH} = x = 1.5 \text{ mol}$$

$$\text{CO}_2 = 2x = 2(1.5) = \boxed{3 \text{ mol}}$$

⑪



a)  $\text{Cu} = 3x = 4 \text{ mol}$

$$x = \frac{4}{3} = 1.3 \text{ mol}$$

$$\text{NO} = 2x = 2(1.3) = \boxed{2.6 \text{ mol}}$$

b)  $\text{Cu} = 3x = 5 \text{ mol}$

$$x = \frac{5}{3} = 1.6 \text{ mol}$$

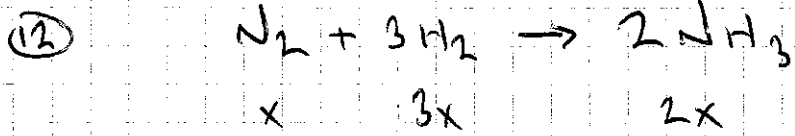
$$\text{HNO}_3 = 8x = 8(1.6) = \boxed{12.8 \text{ mol}}$$

$$\textcircled{11} \quad \text{c) } \text{CO} = \frac{6.35 \text{ g}}{63.5 \text{ g/mol}} = 0.1 \text{ mol}$$

$$\text{CO} = 3x = 0.1 \text{ mol}$$

$$x = \frac{0.1}{3} = 0.0\bar{3} \text{ mol}$$

$$\text{NO} = 2x = 2(0.0\bar{3}) = \boxed{0.0\bar{6} \text{ mol}}$$



$$x \quad 3x \quad 2x$$

$$\text{a) } \text{N}_2 = x = 1 \text{ mol}$$

$$\text{NH}_3 = 2x = 2(1) = \boxed{2 \text{ mol}}$$

$$\text{b) } \text{H}_2: \frac{18.0 \times 10^{23}}{6.02 \times 10^{23}} = 2.99 \text{ mol}$$

$$\text{H}_2 = 3x = 2.99 \text{ mol}$$

$$x = 0.997 \text{ mol}$$

$$\text{NH}_3 = 2x = 2(0.997) = \boxed{1.99 \text{ mol}}$$

$$\text{c) } \text{N}_2 = x = 0.1 \text{ mol}$$

$$\text{NH}_3 = 2x = 2(0.1) = \boxed{0.2 \text{ mol}}$$

$$\text{H}_2 = 3x = 0.3 \text{ mol}$$

$$\text{NH}_3 = 2x = 2(0.1)$$

$$x = \frac{0.3}{3} = 0.1 \text{ mol}$$

$$= \boxed{0.2 \text{ mol}}$$

if they weren't the same, you would take the lesser of the two.