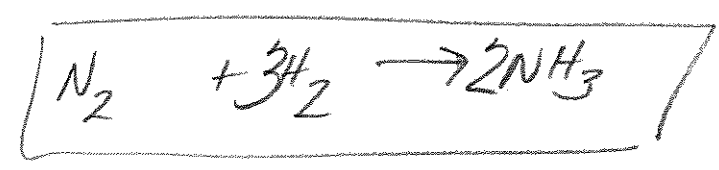


$$1. \quad 65.4 \text{ g } N_2 \left| \begin{array}{l} 1 \text{ mol} \\ N_2 \end{array} \right| \begin{array}{l} 2 \text{ mol} \\ NH_3 \end{array} \left| \begin{array}{l} 17 \text{ g} \\ NH_3 \end{array} \right| = 79.4 \text{ g } NH_3$$

$$98.7 \text{ g } H_2 \left| \begin{array}{l} 1 \text{ mol} \\ H_2 \end{array} \right| \begin{array}{l} 2 \text{ mol} \\ NH_3 \end{array} \left| \begin{array}{l} 17 \text{ g} \\ NH_3 \end{array} \right| = 559.3 \text{ g } NH_3$$



Answer -
less amount
of NH_3

NO #2

$$3. \quad M = \frac{\text{mol}}{L} \quad \frac{4.0 \text{ mol}}{1.5 L} = \text{this would give } M \text{ - but is not asked for in the problem}$$

A. solute is $Ca_3(PO_4)_2$

$$B. \quad \frac{4.0 \text{ mol} \times 310.3 \text{ g}}{1 \text{ mol}} = 1241.2 \text{ g}$$

$$Ca = (40.1)3 = 120.3$$

$$P = (31)2 = 62$$

$$O = (16)8 = 128$$

$$310.3$$

4.

Acid (HCl)

Base (Ca(OH)₂)

$$M = \frac{\text{mol}}{L}$$

$$M = \frac{\text{mol}}{L}$$

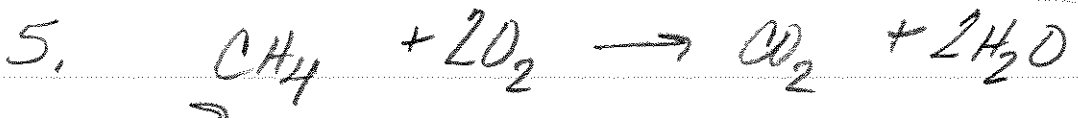
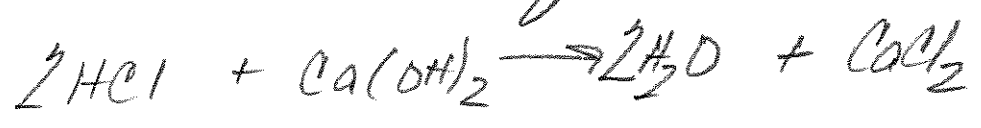
$$.15 = \frac{\text{mol}}{.050}$$

$$M = \frac{\text{mol}}{.023} = \frac{.00375}{.023}$$

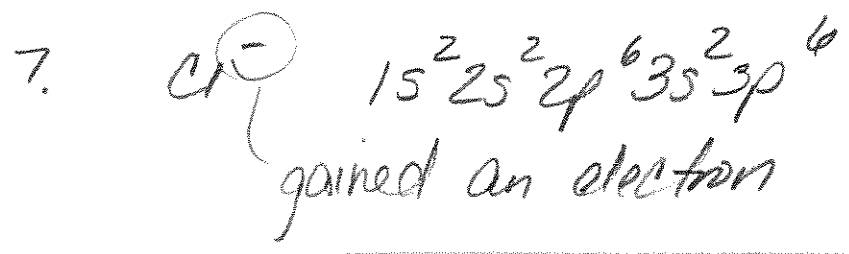
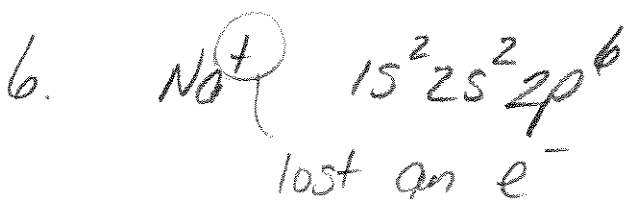
$$.0075 = \text{mol HCl} \left| \frac{1 \text{ mol Ca(OH)}_2}{2 \text{ mol HCl}} \right. = .00375 \text{ mol Ca(OH)}_2$$

M = .16

Write a balanced equation



From organic - methane single bond
1 carbon



8. Recall for STP : 22.4L = 1 mol

$$6.28 \text{ g Fe} \left| \frac{1 \text{ mol Fe}}{55.99 \text{ g Fe}} \right| \left| \frac{4 \text{ mol H}_2}{3 \text{ mol Fe}} \right| \left| \frac{22.4 \text{ L}}{1 \text{ mol}} \right. = 9.35 \text{ L H}_2$$

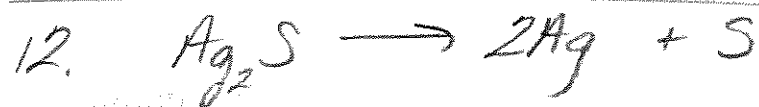
NO # 9

NO # 10

11. % yield = $\frac{\text{actual}}{\text{theor.}}$

$$= \frac{.0349 \text{ mol C}}{.0502 \text{ mol C}} \times 100 = \boxed{69.5\%}$$

$$.0251 \text{ mol A} \left| \frac{4 \text{ mol C}}{2 \text{ mol A}} \right| = .0502 \text{ mol C theor.}$$



$$.025 \text{ mol Ag}_2\text{S} \left| \frac{2 \text{ mol Ag}}{1 \text{ mol Ag}_2\text{S}} \right| \left| \frac{107.8 \text{ g Ag}}{1 \text{ mol}} \right| = \boxed{5.39 \text{ g Ag}}$$

13. All are $[\text{OH}^-]$ amounts:

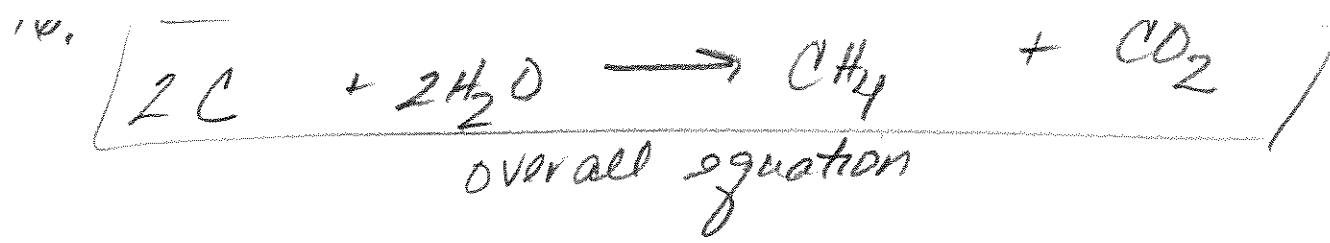
A. $1 \times 10^{-5} = [\text{OH}^-]$ so $\text{pOH} = 5$ so $\text{pH} = 9$
OR $[\text{H}^+] = 1 \times 10^{-9}$ so $\text{pH} = 9$

B. $5 \times 10^{-8} = [\text{OH}^-]$ so $\text{pOH} = 7.30$ so $\text{pH} = 6.7$

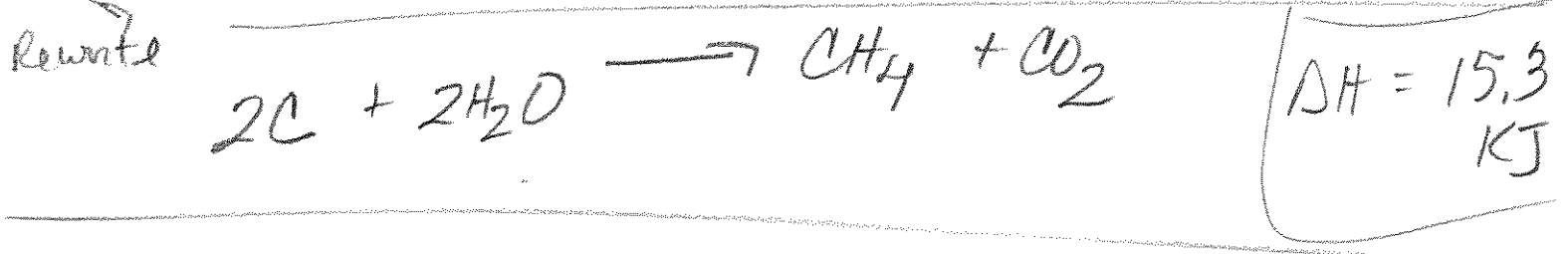
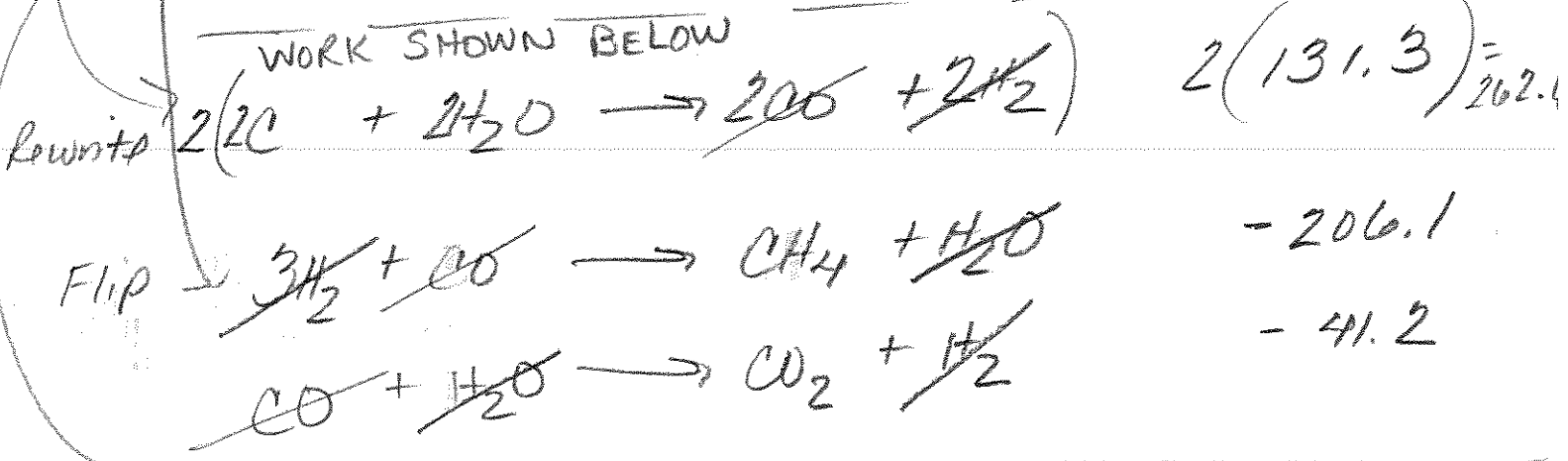
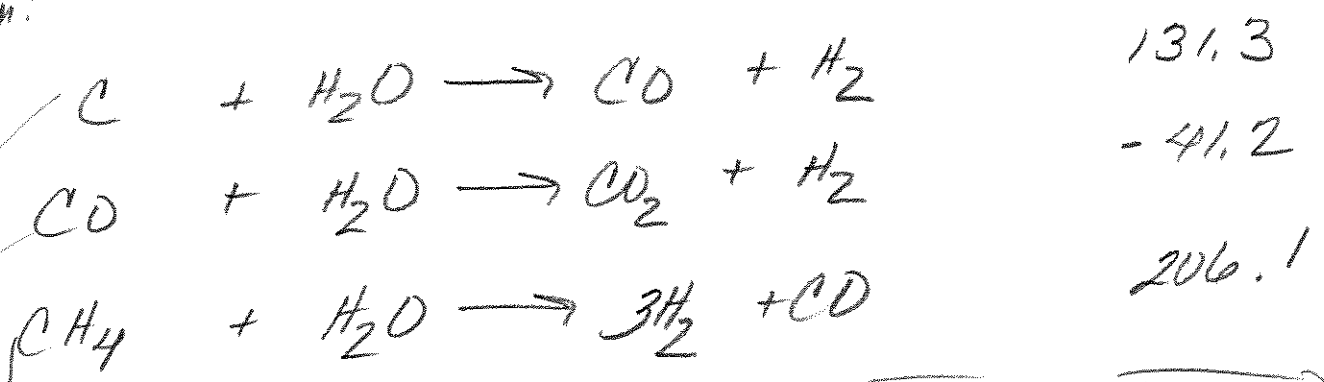
C. $2.90 \times 10^{-11} = [\text{OH}^-]$ so $\text{pOH} = 10.53$ so $\text{pH} = 3.47$

NO # 14

NO # 15



Given:



NO 17

