

PS 3-1

(19)

$\boxed{\text{C H}_2 \text{O}} \quad 1:2:1$

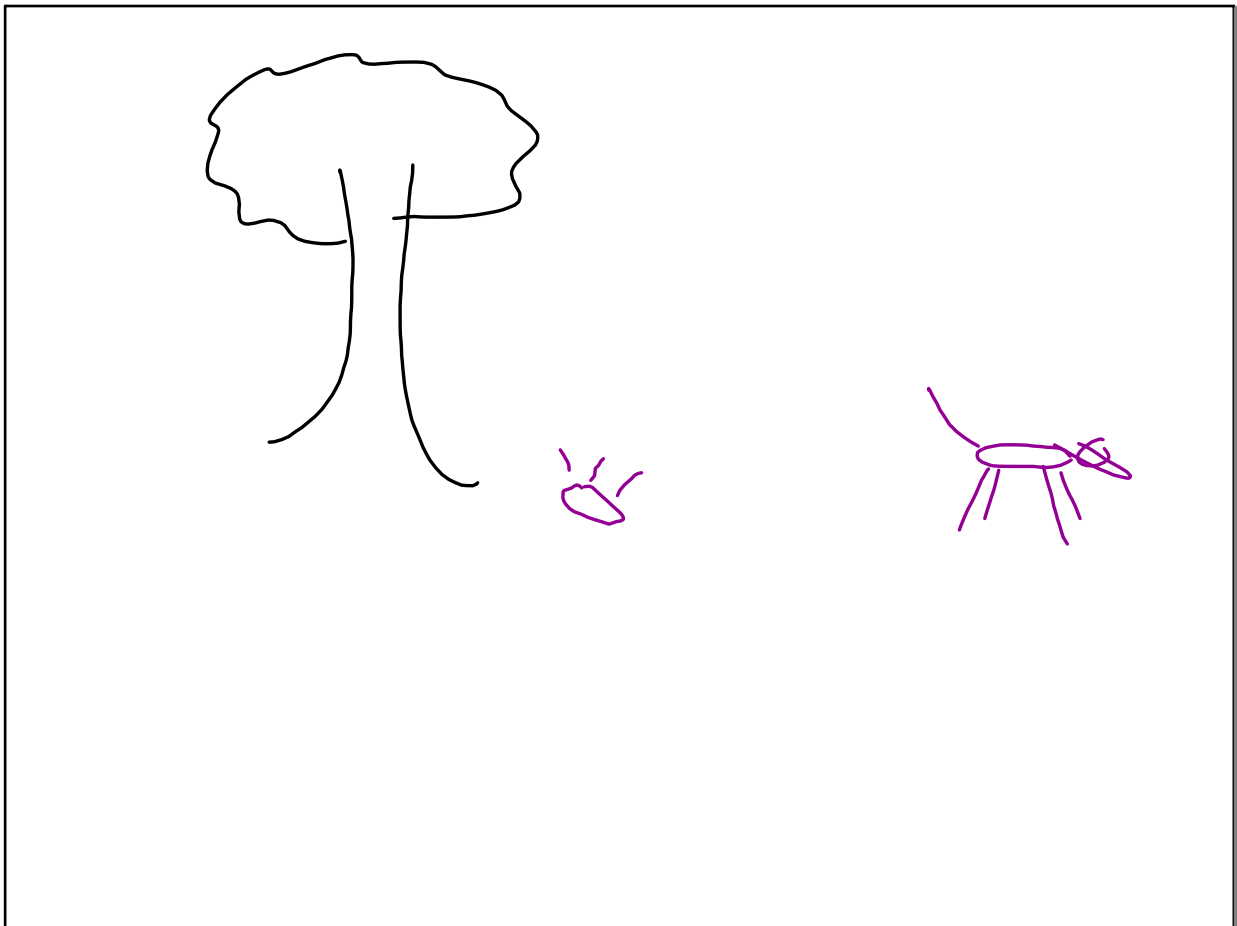
$\text{C} \quad \text{H} \quad \text{O}$
 $x \quad y \quad z$

\rightarrow MOLES of each element. Subscripts.

$\% = \text{out of } 100$ \rightarrow Assume 100g Sample $\% \Rightarrow \text{g}$

C	40%	$\frac{40\text{g C}}{12\text{g}} = 3.33 \text{ mole C}$	\times	$\frac{3.33}{3.33}$	(1)
H	6.7%	$\frac{6.7\text{g H}}{1\text{g H}} = 6.7 \text{ mole H}$	\times	$\frac{6.7}{3.33}$	(2)
O	53.3%	$\frac{53.3\text{g O}}{16\text{g O}} = 3.33 \text{ mole O}$	\times	$\frac{3.33}{3.33}$	(1)
	100%				

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$1 : 2.5 : 1$ after dividing by smallest #
 $2 : 5 : 2$
 $0.5 * 2$
 $0.25 \text{ or } 0.75 * 4$
 $0.33 \text{ or } 0.66 * 3$

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(22) $Pb(NO_3)_2 + 2KI \rightarrow PbI_2 + 2KNO_3$
 $(6.5g) \quad \quad \quad ?g$

6.5g KI	1 mole KI	1 mole PbI_2	461g PbI_2
	6.5g KI	2 moles KI	1 mole PbI_2

9.026g PbI_2

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(24) $\text{Ru}_3(\text{CO})_{12} + \text{AsF}_3 \rightarrow 3 \text{Ru}(\text{C}_2\text{H}_5)(\text{AsF}_3)_3 + 6 \text{CO}$

$\text{Ru}_3(\text{CO})_{12}$ (1 mole) \rightarrow 2 m moles
 AsF_3 (1 mole) \rightarrow 24 m moles

Ru (3 moles) \rightarrow 8 m moles (circled in pink)
 Milli mole

Do each calc. separately. \Rightarrow Smallest Product is The Limiting reagent.

2 m mole $\text{Ru}_3(\text{CO})_{12}$	3 m mole $\text{Ru}(\text{AsF}_3)_3$	= 6 m mole Ru
24 m mole AsF_3	9 m mole AsF_3	

24 m mole AsF_3	3 m mole Ru	= 8 m mole Ru
9 m mole AsF_3	9 m mole AsF_3	

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$$\frac{1 \text{ pound}}{16 \text{ oz}} = \frac{1 \text{ milli pound}}{16 \text{ milli oz}}$$

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Used up

$$\text{LR} \rightarrow \text{N}_2 + 3\text{H}_2 \rightarrow 2\text{NH}_3$$

$\xrightarrow{5g} \quad \xrightarrow{5g} \quad \xrightarrow{1g}$

① How much $\text{NH}_3(g)$ in grams can be produced. 6.07g LR
 ② Who is The LR?
 ③ How much excess of non-LR is there?

$5g \text{H}_2$	1mole H_2	2mole NH_3	$17g \text{NH}_3$
$28g \text{H}_2$	2mole H_2	4mole NH_3	$34g \text{NH}_3$

6.07g NH_3 LR

$5g \text{H}_2$	1mole H_2	2mole NH_3	$17g \text{NH}_3$
	$2g \text{H}_2$	3mole H_2	$1 \text{mole NH}_3 = 28.33g \text{NH}_3$

$5g \text{N}_2$	1mole N_2	3mole H_2	$2g \text{H}_2$
	$28g \text{N}_2$	1mole N_2	$1 \text{mole H}_2 = 1.07g \text{H}_2$

$5g - 1.07g = 3.93g \text{H}_2$
 has been used left over

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% yield

32

88.9%

$$\frac{\text{how much we get in lab}}{\text{how much we should get (math)}} * 100$$

36

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3/50^a ,72, 77

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