

Concentration terms

S-I

(28)

500ml

1000

2 mol H₂O1 mol O₂2 mol O₂

$$\begin{aligned} & 2 \times 22.4 \\ & = \underline{44.8} \end{aligned}$$

Concentration terms

(8)

7 m NaOH

1000 gm solvent contains 7 mol NaOH
 $7 \times 40 \text{ gm NaOH}$

280 gm NaOH

$$\begin{aligned} W_{\text{solution}} &= 1000 + 280 \\ &= 1280 \text{ gm} \end{aligned}$$

$$\textcircled{Q} \quad X_{H_2O} = \frac{n_{H_2O}}{n_{H_2O} + n_{NaOH}}$$

Concentration terms



6 mmol

3 mmol

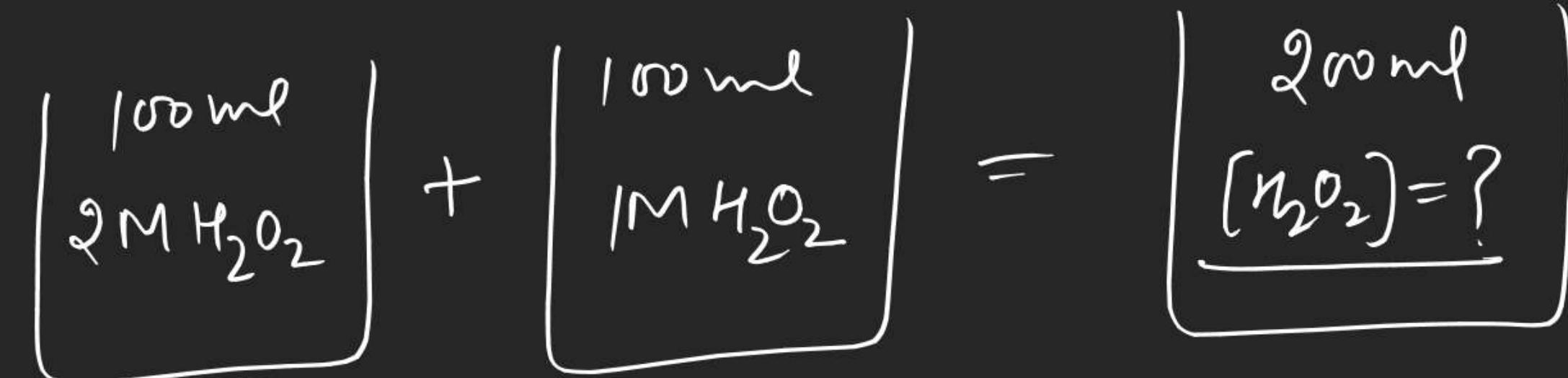
3 mmol

O

6 mmol150 ml

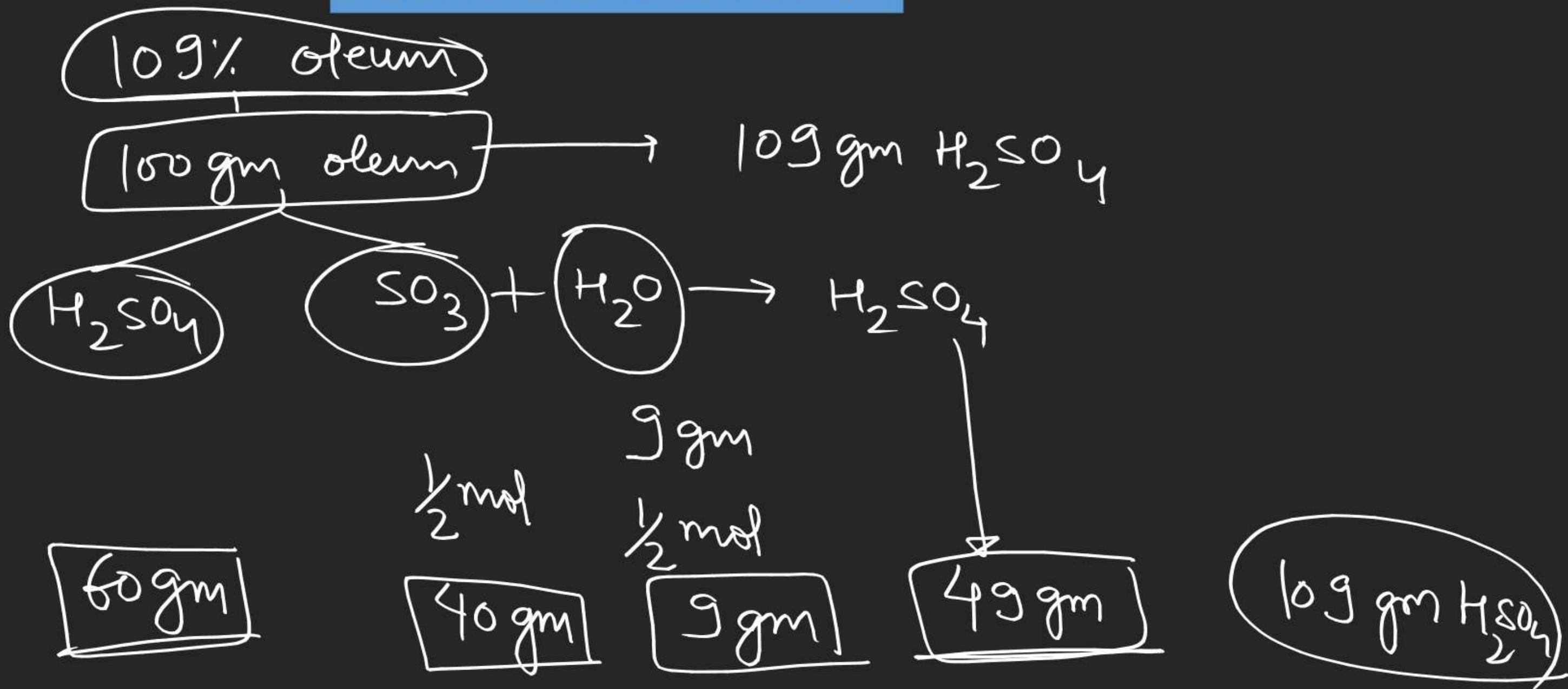
Concentration terms

Q-I 27



$$11.35 = M \times 11.35$$

Concentration terms

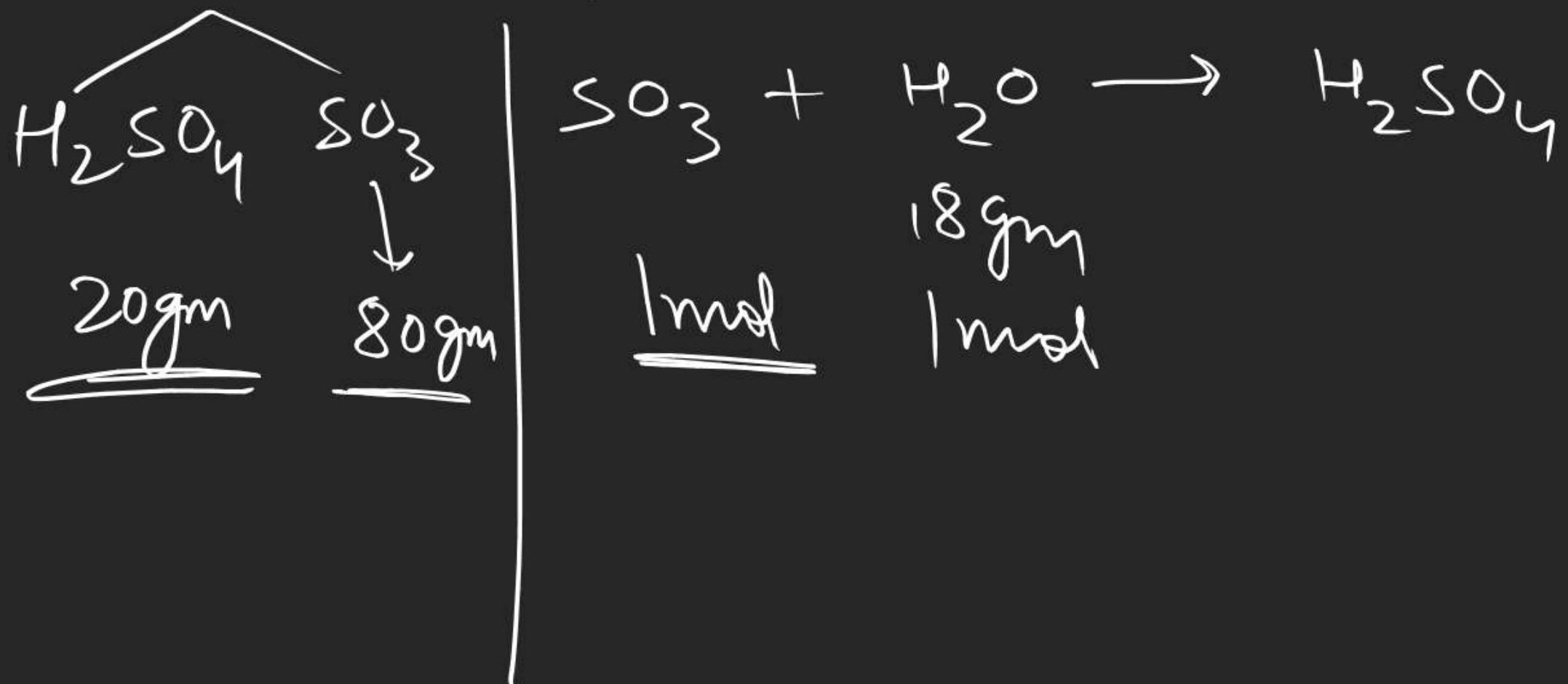


Concentration terms

$$(100 + x)\%$$

mass of H_2O which reacts with 100 gm oleum

Q. find mass of H_2SO_4 & SO_3 in 100 gm, 118% oleum?



Concentration terms

Q. find % by mass H_2SO_4 in
104.5% oleum?



$\frac{1}{4}$ mol $\frac{1}{4}$ mol

20 gm

$H_2SO_4 \rightarrow 80 \text{ gm}$

Concentration terms

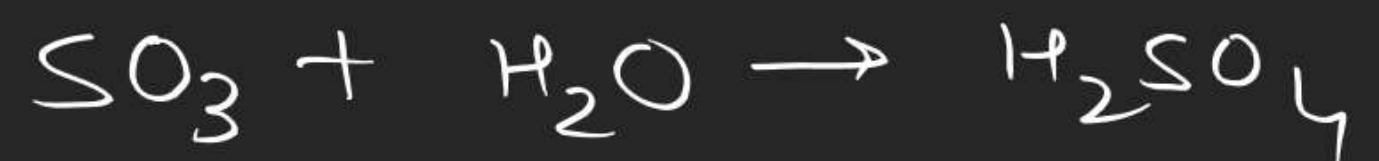
Q. find % labelling of a mixture containing 200 gm SO₃
 with 300 gm H₂SO₄.

500 %

545 %

109 %

145 %



2.5 mol 2.5 mol

45 gm

500 gm → 45 gm H₂O

→ 100 gm → 9 gm H₂O

109 %

Concentration terms

O. find % labelling of oleum containing equal mass of H_2SO_4 & SO_3 .



11.25%

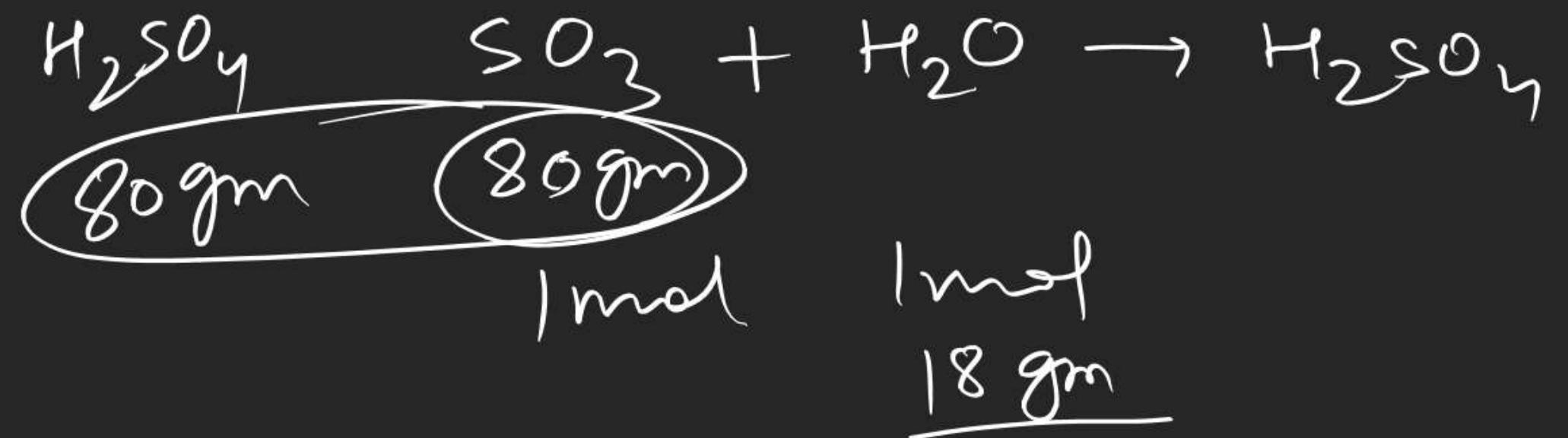
$$\frac{50 \text{ gm}}{80}$$

$\frac{5}{8} \text{ mol}$

$\frac{5}{8} \text{ mol}$

$$\frac{5}{8} \times 18 \text{ gm}$$

$$\frac{9}{8} \text{ gm} \Rightarrow \underline{\underline{11.25 \text{ gm}}}$$

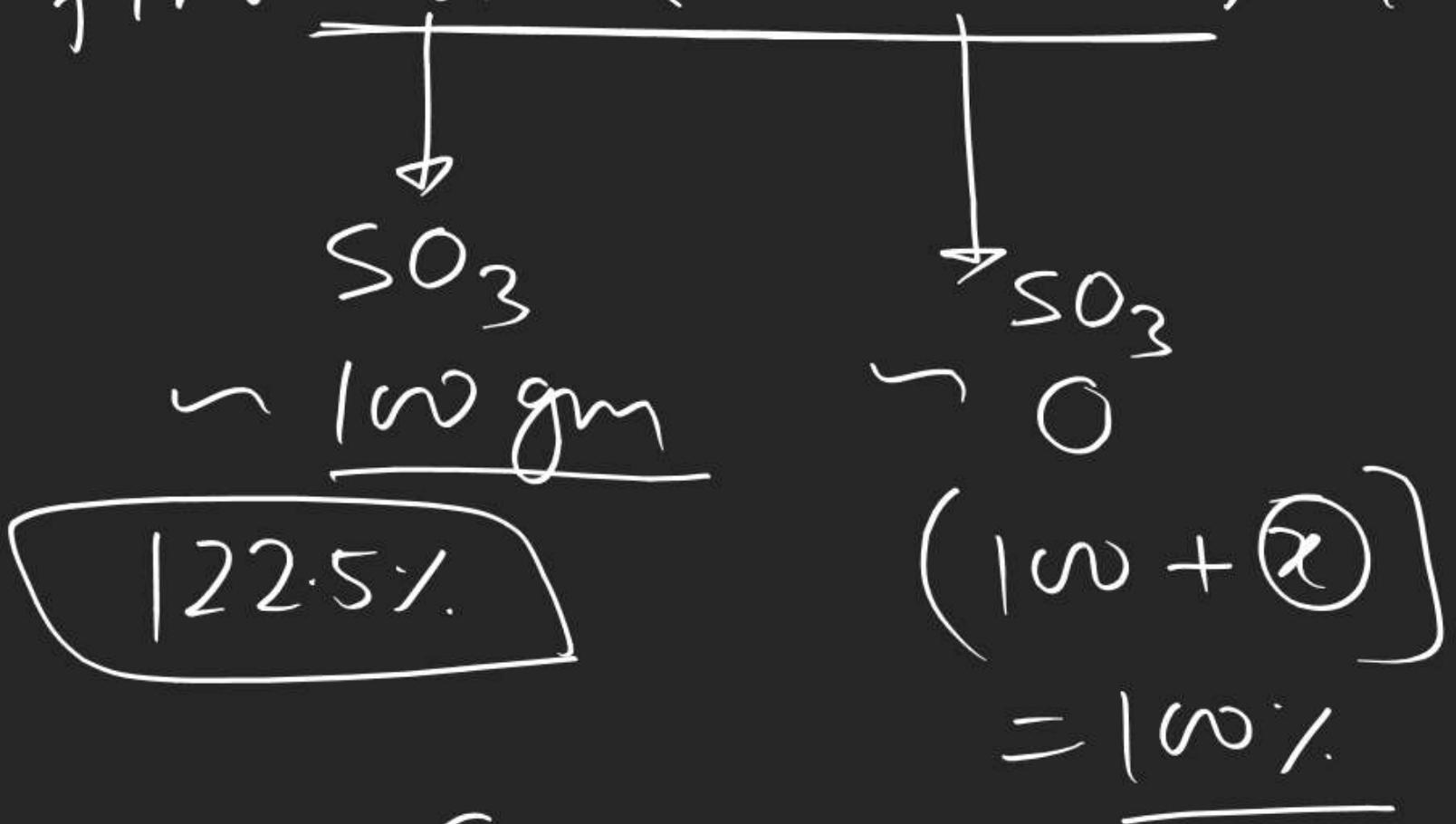


$$160 \rightarrow 18 \text{ gm}$$

$$100 \rightarrow \frac{18}{160} \times 100 = \frac{180}{16} = \frac{90}{8}$$

Concentration terms

Q. find max & minimum % labelling.



$$\begin{aligned}
 &\frac{100}{80} \\
 &= 1.25 \text{ mol} \\
 &\quad \text{1.25 mol} \\
 &\quad = 22.5 \text{ gm}
 \end{aligned}$$

Concentration terms



2 mol

$$V = \frac{nRT}{P}$$

$$\frac{2 RT}{P}$$

Same P & T

Let $\frac{RT}{P} = x \text{ lit}$

$2x \text{ lit}$

2 lit

1 mol

$$\frac{1 RT}{P}$$

$x \text{ lit}$

1 lit

3 mol

$$\frac{3 RT}{P}$$

$3x \text{ lit}$

3 lit

Concentration terms



P, T same 5 lit 15 lit 10 lit ~~X~~

V, T same 5 atm 15 atm 10 atm ~~X~~

Concentration terms

Q. 10 lit N₂ is mixed with 21 lit H₂ to form NH₃(g)
find volume of each gas and volume contraction.



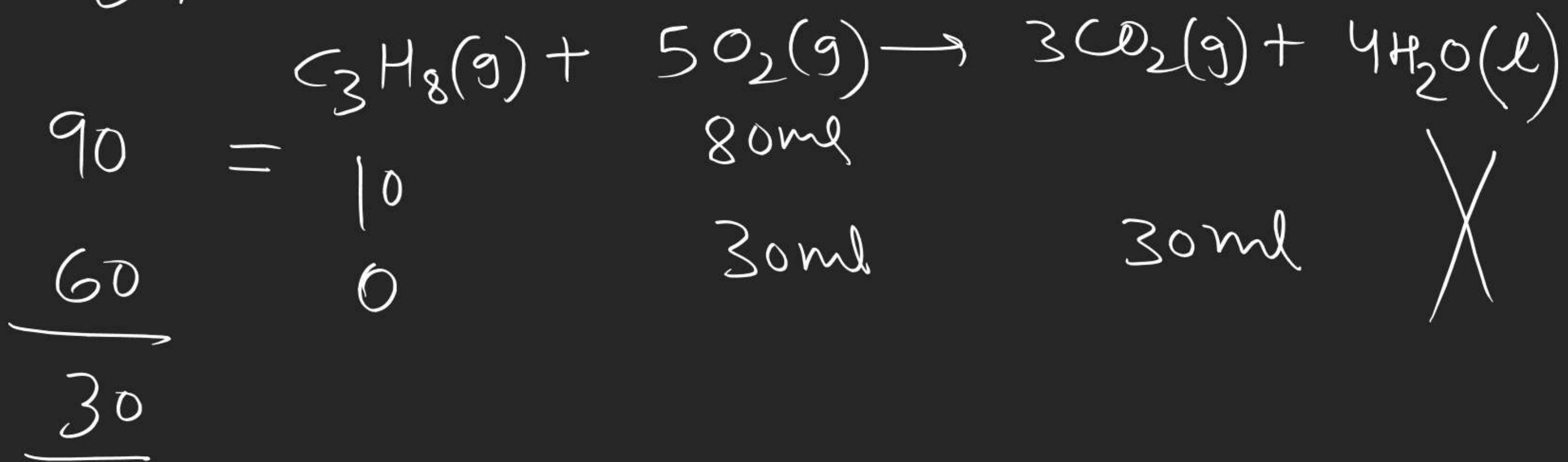
$$31 \text{ lit} = 10 \text{ lit} \quad 21 \text{ lit}$$

$$\underline{17 \text{ lit}} = \textcircled{3 \text{ lit}} \quad 0 \quad \textcircled{14 \text{ lit}}$$

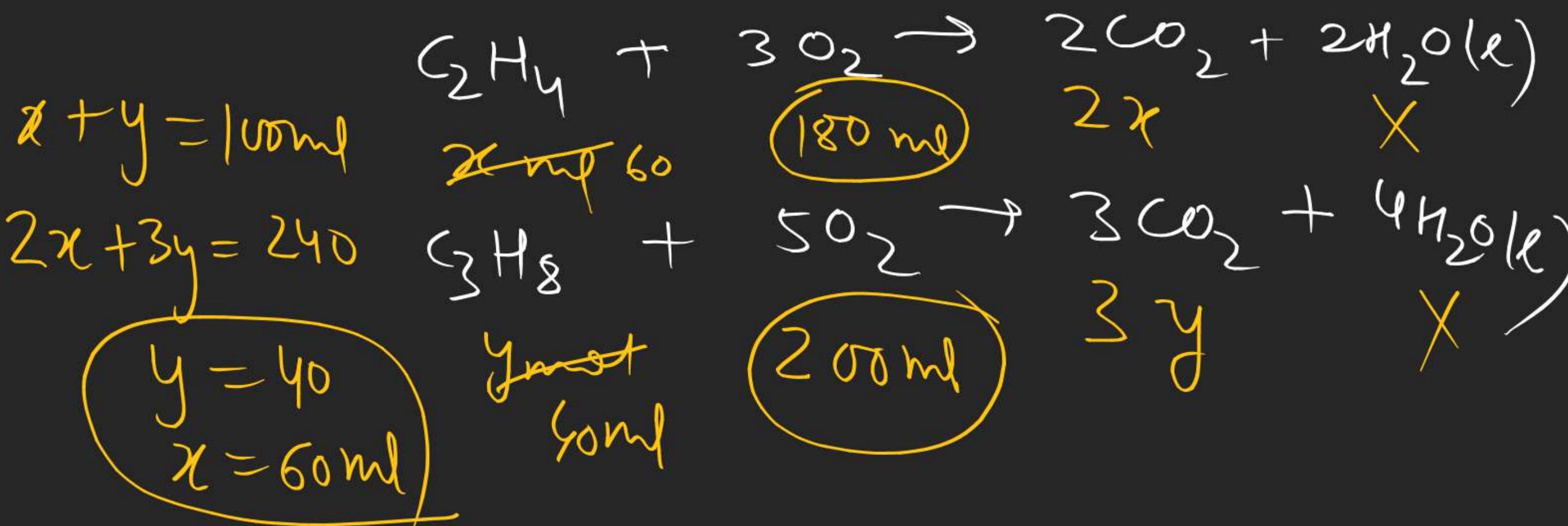
$$\frac{\text{Volume contraction}}{\text{---}} = \frac{V_i - V_f}{= 31 - 17 = \underline{14 \text{ lit}}}$$

Concentration terms

D. 10 ml $C_3H_8(g)$ is mixed with 80 ml $O_2(g)$
at 300K. find volume of each gas & volume
 contraction.



$\underline{Q.}$ 100 ml mixture of $C_2H_4(g)$ & $C_3H_8(g)$ is burnt with excess O_2 . If volume of CO_2 produced is 240 ml, find volume of each in original mixture and volume contraction.



Concentration terms

Q. 100 ml mixture ($O_3 + O_2$) was heated due to which volume increased to 125 ml. find volume of each initially.

$$O_2 \quad |100-x|$$



$$x \quad |100-x|$$

$$O \quad |100-x| + \frac{3}{2}x = 125$$

$$0.5x = 25$$

$$\underline{x = 50\text{ml}}$$

Concentration terms

O - C 28 - 33

S - I 29 - 32

O - I

17 - 22

halogen
Sulphur
Nitrogen
Phosphorus