

Answer Key Gas-Stoich WS #1-4

1) ethane: 2, 7, 2, 6

10 mL C ₂ H ₆	7 mL O ₂	= 35 mL O ₂
	2 mL C ₂ H ₆	

Acetylene: 2, 5, 4, 2

10 mL C ₂ H ₂	5 mL O ₂	= 25 mL O ₂
	2 mL C ₂ H ₂	

Propane: 1, 5, 3, 4

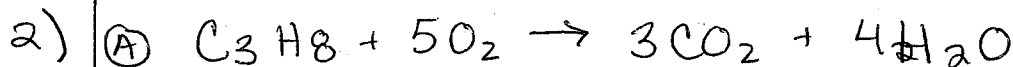
10 mL C ₃ H ₈	5 mL O ₂	= 50 mL O ₂
	1 mL C ₃ H ₈	

Butane: 2, 13, 8, 10

10 mL C ₄ H ₁₀	13 mL O ₂	= 65 mL O ₂
	2 mL C ₄	

MAPP Gas: 1, 4, 3, 2

10 mL MAPP	4 mL O ₂	= 40 mL O ₂
	1 mL MAPP	



(B) PV = nRT

P = 4 atm V = ? n = 1.75 mol

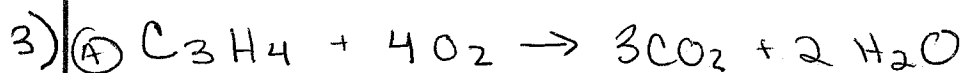
R = 0.0821 $\frac{\text{L} \cdot \text{atm}}{\text{mol} \cdot \text{K}}$ T = 375 K

(4 atm) V = (1.75 mol)(0.0821)(375 K)

V = 13.47 L

(C) 13.47 L C ₃ H ₈	3 L CO ₂	=	40.4 L CO ₂
	1 1		

(D) 13.47 L C ₃ H ₈	4 L H ₂ O	=	53.9 L H ₂ O
	1 L C ₃ H ₈		



(B) $PV = nRT$

$P = 1.2 \text{ atm}$ $V = ?$ $n = 3.5 \text{ mol}$

$R = 0.0821 \frac{\text{L} \cdot \text{atm}}{\text{K} \cdot \text{mol}}$ $T = 300 \text{ K}$

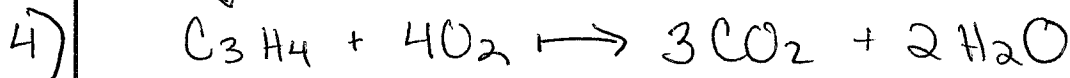
$(1.2 \text{ atm})(V) = (3.5 \text{ mol})(0.0821)(300 \text{ K})$

$V = 71.8 \text{ L}$

(C) $\frac{71.8 \text{ L } C_3H_4}{1 \text{ L } C_3H_4} \times \frac{4 \text{ L } O_2}{1 \text{ L } C_3H_4} = 287 \text{ L } O_2$

(D) $\frac{71.8 \text{ L } C_3H_4}{1 \text{ L } C_3H_4} \times \frac{3 \text{ L } CO_2}{1 \text{ L } C_3H_4} = 215.5 \text{ L } CO_2$

"mapp"
↓



$PV = nRT$

$P = 3 \text{ atm}$ $V = ?$

$n = 0.5 \text{ mol}$

$R = 0.0821 \frac{\text{L} \cdot \text{atm}}{\text{K} \cdot \text{mol}}$

$T = 350 \text{ K}$

$(3 \text{ atm})(V) = (0.5 \text{ mol})(0.0821)(350)$

$V = 4.79 \text{ L}$
MAPP used

$\frac{4.79 \text{ L mapp used}}{1 \text{ L MAPP}} \times \frac{2 \text{ L } H_2O}{1 \text{ L MAPP}} = 9.58 \text{ L } H_2O \text{ made}$