

Answer the Question #79429

$$V=2 \text{ l.}$$

$$m_{(\text{CH}_4)}= 1.6 \text{ g.}$$

$$m_{(\text{H}_2)}= 0.5 \text{ g.}$$

$$T=27^\circ \text{ C} = 300 \text{ K}$$

$$P_{(\text{CH}_4)}=?$$

$$P_{(\text{H}_2)}=?$$

$$P_{\text{tot}}=?$$

Formula: $PV=(mRT)/M$ therefore $P=(mRT)/MV$

and $P_{\text{tot}}= P_{(\text{CH}_4)}+ P_{(\text{H}_2)}$

$$P_{(\text{CH}_4)}=(1.6 \times 8.314 \times 300)/(16 \times 2)=124.71 \text{ kpa.}$$

$$P_{(\text{H}_2)}= (0.5 \times 8.314 \times 300)/(2 \times 2)=311.775 \text{ kpa.}$$

$$P_{\text{tot}}=124.71 + 311.775= 436.485$$