

E1] $V = 2L$ $P = 2 \text{ atm}$
 $T = 200^\circ\text{C} = 473 \text{ K}$

$1 \text{ mol } O_2 = 32g$

$PV = nRT$
 $n = \frac{PV}{RT} = \frac{2 \cdot 2}{0,082 \cdot 473}$

$n = 0,103 \text{ moles}$

$0,103 \text{ moles} \times \frac{32g}{1 \text{ mol}} = 3,296g$

E2] $V = 100L$ $T = 20^\circ\text{C} = 293K$

$3,43kg = 3430g \times \frac{1 \text{ mol } O_2}{32g} =$
 $= 107,188 \text{ mol}$

$PV = nRT$

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

$P = \frac{107,188 \cdot 0,082 \cdot 293}{100}$

$P = 25,753 \text{ atm}$

E3] $0,399 \text{ moles}$ $T =$

$V = 4,31L$ $P = 6,37 \text{ atm}$

$PV = nRT$

$T = \frac{PV}{nR} = \frac{6,37 \cdot 4,31}{0,399 \cdot 0,082}$

$T = 839,131K$

E4] $0,028 \text{ moles}$ $V = 3,19L$

$T = 7914^\circ\text{C} = 8187K$ $P =$

$PV = nRT$

$P = \frac{nRT}{V} = \frac{0,028 \cdot 0,082 \cdot 8187}{3,19}$

$P = 5,893 \text{ atm} \times \frac{760 \text{ mmHg}}{1 \text{ atm}} =$

$P = 4478,68 \text{ mmHg}$

G5] $1216g SO_2 \times \frac{1 \text{ mol } SO_2}{64g} = 19 \text{ moles}$

$T = 18^\circ\text{C} = 291K$

$775 \text{ mmHg} = 1,012 \text{ atm}$

$V = \frac{nRT}{P} = \frac{19 \cdot 0,082 \cdot 291}{1,012} = 448,006L$

E6] $V = 30 \text{ mL} = 0,03L$ $1 \text{ mol } H_2O = 18g$

$0,25g H_2O \times \frac{1 \text{ mol } H_2O}{18g} = 0,014 \text{ moles}$

$T = 340^\circ\text{C} = 613K$

$PV = nRT \Rightarrow P = \frac{nRT}{V} = \frac{0,014 \cdot 0,082 \cdot 613}{0,03} =$

$P = 23,457 \text{ atm}$

E7] $65,4 \text{ mL} = 0,0654L$

$9576 \text{ mmHg} = 12,6 \text{ atm}$ $39^\circ\text{C} = 312K$

$PV = nRT \Rightarrow n = \frac{PV}{RT} = \frac{12,6 \cdot 0,0654}{0,082 \cdot 312}$

$n = 0,032 \text{ moles}$

E8] $1 \text{ mol } CO_2 = 44g$

$100^\circ\text{C} = 373K$ $720 \text{ mmHg} = 0,947 \text{ atm}$

$PV = nRT \Rightarrow V = \frac{nRT}{P} = \frac{3,409 \cdot 0,082 \cdot 373}{0,947}$

$150g CO_2 \times \frac{1 \text{ mol } CO_2}{44g} = 3,409 \text{ moles}$

$V = 110,103L$

E9] $500 \text{ mL} = 0,5L$

$45^\circ\text{C} = 318K$

$260 \text{ mmHg} = 0,342 \text{ atm}$

$n = \frac{PV}{RT}$

$n = \frac{0,342 \cdot 0,5}{0,082 \cdot 318}$

INICIO

INICIALES $\rightarrow n = 0,007 \text{ moles}$

AL FINAL

$V = 400 \text{ mL} = 0,4L$

$P = 380 \text{ mmHg} = 0,5 \text{ atm}$

$T = \frac{PV}{nR} = \frac{0,5 \cdot 0,4}{0,007 \cdot 0,082} = 348,432K$

E10] CONDICIONES NORMALES $0^\circ\text{C} = 273K$, 1 atm

$V = \frac{nRT}{P} = \frac{1 \cdot 0,082 \cdot 273}{1} = 22,386L$

E11] $45^\circ\text{C} = 318K$

$P = \frac{nRT}{V} = \frac{1,5 \cdot 0,082 \cdot 318}{2,3} = 17,006 \text{ atm}$

E14) $10 \text{ mL} = 0,01 \text{ L}$

$700 \text{ mmHg} = 0,921 \text{ atm}$

$20^\circ\text{C} = 293 \text{ K}$
calculo moles

$$n = \frac{PV}{RT} = \frac{0,921 \cdot 0,01}{0,082 \cdot 293}$$

$n = 0,0004 \text{ moles}$

EN CONDICIONES NORMALES 273 K 1 atm

$$V = \frac{nRT}{P} = \frac{0,0004 \cdot 0,082 \cdot 273}{1}$$

$V = 0,009 \text{ L e12}$

E13) $V = 1 \text{ L}$ $P = 1,5 \text{ atm}$ $4,88 \text{ g}$
 $37^\circ\text{C} = 300 \text{ K}$

calcular los moles de CO_2 y después
cuantos g son

$$n = \frac{PV}{RT} = \frac{1,5 \cdot 1}{0,082 \cdot 300} = 0,061 \text{ moles}$$

$\text{SO}_3 \rightarrow 1 \text{ mol} = 80 \text{ g}$ $\text{SO}_2 = 1 \text{ mol} = 64 \text{ g}$

Si es SO_3

$$0,061 \text{ mol SO}_3 \times \frac{80 \text{ g}}{1 \text{ mol SO}_3} = 4,88 \text{ g}$$

Si es SO_2

$$0,061 \text{ mol SO}_2 \times \frac{64 \text{ g}}{1 \text{ mol SO}_2} = 3,90 \text{ g}$$

sol SO_3 $\text{SO}_3 \text{ e13}$

E14) $100 \text{ mL} = 0,1 \text{ L}$ $T = 0^\circ\text{C} = 273 \text{ K}$
 $P = 1 \text{ atm}$

calculo cuantos moles H_2

$$n = \frac{PV}{RT} = \frac{1 \cdot 0,1}{0,082 \cdot 273} = 0,0045 \text{ moles}$$

$$0,0045 \text{ moles} \times \frac{X \text{ g}}{1 \text{ mol}} = 0,0371 \text{ g}$$

$X = 74,2 \text{ g e14}$

E15) 4 L 7 g $1,2 \text{ atm}$ 303 K

IGUAL QUE EL ANTERIOR

$$n = \frac{PV}{RT} = \frac{1,2 \cdot 4}{0,082 \cdot 303} = 0,193 \text{ mol}$$

$$0,193 \text{ mol} \times \frac{X \text{ g}}{1 \text{ mol}} = 7 \text{ g} \quad X = 36,26 \text{ g e15}$$

E16) $15^\circ\text{C} = 288 \text{ K}$ 2 L

$770 \text{ mmHg} = 1,013 \text{ atm}$

$$n = \frac{PV}{RT} = \frac{1,013 \cdot 2}{0,082 \cdot 288} = 0,086 \text{ moles}$$

$$0,086 \text{ moles} \times \frac{X \text{ g}}{1 \text{ mol}} = 3,8 \text{ g}$$

$X = 44,186 \text{ g e16}$

E17) CO_2 $1,5 \text{ L}$ $18^\circ\text{C} = 291 \text{ K}$

$800 \text{ mmHg} = 1,053 \text{ atm}$

$$n = \frac{PV}{RT} = \frac{1,053 \cdot 1,5}{0,082 \cdot 291} = 0,066 \text{ moles}$$

$1 \text{ mol CO}_2 \rightarrow 44 \text{ g}$

$$0,066 \text{ moles CO}_2 \times \frac{44 \text{ g}}{1 \text{ mol CO}_2} = 2,904 \text{ g e17}$$

E18) $1,2 \text{ L}$ $2,8 \text{ atm}$ $78^\circ\text{C} = 351 \text{ K}$

$$n = \frac{PV}{RT} = \frac{2,8 \cdot 1,2}{0,082 \cdot 351} = 0,117 \text{ moles}$$

$1 \text{ mol O}_2 = 32 \text{ g}$

$$0,117 \text{ moles} \times \frac{32 \text{ g}}{1 \text{ mol}} = 3,744 \text{ g e18}$$

E19) $25^\circ\text{C} = 298 \text{ K}$ 1 atm

$$3 \text{ g O}_2 \times \frac{1 \text{ mol O}_2}{32 \text{ g}} = 0,094 \text{ mol}$$

$$V = \frac{nRT}{P} = \frac{0,094 \cdot 0,082 \cdot 298}{1}$$

$V = 2,297 \text{ L e19}$

E20) $8 \text{ g O}_2 \times \frac{1 \text{ mol O}_2}{32 \text{ g}} =$

$$8 \text{ g O}_2 \times \frac{1 \text{ mol O}_2}{32 \text{ g}} = 0,25 \text{ mol O}_2$$

$5 \text{ L}; 770 \text{ mmHg} = 1,013 \text{ atm}$

$$T = \frac{PV}{nR} = \frac{1,013 \cdot 5}{0,082 \cdot 0,25}$$

$T = 253,415 \text{ K e20}$