

Taller 2

$$\text{torr} \Rightarrow 3 \text{ atm} \times \frac{1 \text{ torr}}{1,760 \text{ atm}} = 2280 \text{ torr}$$

$$\text{bar} \Rightarrow 3 \text{ atm} \times \frac{1.01325 \text{ bar}}{1 \text{ atm}} = 3.03975 \text{ bar}$$

$$\text{Pa} \Rightarrow 3 \text{ atm} \times \frac{101325 \text{ Pa}}{1 \text{ atm}} = 303,975 \text{ Pa}$$

$$\text{Psi} \Rightarrow 3 \text{ atm} \times \frac{1 \text{ Psi}}{0,268 \text{ atm}} = 44,11 \text{ Psi}$$

3) ③ Diameter = 10 cm

$$P = 45 \text{ kPa} = 45000 \text{ Pa}$$

$$P = \frac{F}{A}$$

$$F = P \cdot A$$

$$F = 45 \text{ kPa} \times 0,00785 \text{ m}^2$$

$$F = 45000 \frac{\text{N}}{\text{m}^2} \times 0,00785 \text{ m}^2$$

$$\text{Diameter} = 10 \text{ cm} \times \frac{1}{100 \text{ cm}} = 0,1 \text{ m}$$

$$A = \frac{\pi \cdot D^2}{4} = \frac{\pi (0,1 \text{ m})^2}{4} = 0,00785 \text{ m}^2$$

$$\text{Pa} = \text{N/m}^2 = \text{kg/m.s}^2$$

$$F = 353,43 \text{ N}$$

④ 0,015 MPa a Pa

$$0,015 \text{ MPa} \times \frac{1000000 \text{ Pa}}{1 \text{ MPa}} = 15000 \text{ Pa}$$

⑤ 25 Pa a kPa

$$25 \text{ Pa} \times \frac{1 \text{ kPa}}{1000 \text{ Pa}} = 0,025 \text{ kPa}$$

⑥ 2500 PSI a bar

$$2500 \text{ PSI} \times \frac{0,0689 \text{ bar}}{1 \text{ PSI}} = 172,25 \text{ bar}$$

⑦ 245 bar a Pa

$$245 \text{ bar} \times \frac{100000 \text{ Pa}}{1 \text{ bar}} = 24500000 \text{ Pa}$$

⑧ 1000000000000 Pa a bar

$$1000000000000 \text{ Pa} \times \frac{1 \text{ bar}}{100000 \text{ Pa}} = 1000000 \text{ bar}$$

⑨ 35 bar a psi

$$35 \text{ bar} \times \frac{15 \text{ PSI}}{1 \text{ bar}} = 525 \text{ PSI}$$

⑩ 5 m atm a Pa

$$5 \text{ m atm} \times \frac{101325 \text{ Pa}}{1 \text{ atm}} = 506625 \text{ Pa}$$

11) 1 m^3 a l

$$1 \cancel{\text{m}^3} \times \frac{1000 \text{ L}}{1 \cancel{\text{m}^3}} = 1000 \text{ L}$$

12) 1000 ml a l

$$1000 \cancel{\text{ml}} \times \frac{1 \text{ L}}{1000 \cancel{\text{ml}}} = 1 \text{ L}$$

13) 75 galones a l

$$75 \cancel{\text{gal}} \times \frac{1 \text{ L}}{3,785 \cancel{\text{gal}}} = 19,82 \text{ L}$$

14) 120 l a m^3

$$120 \cancel{\text{l}} \times \frac{1 \text{ m}^3}{1000 \cancel{\text{l}}} = 0,12 \text{ m}^3$$

15) 1000 O_2 a l

$$1000 \cancel{\text{O}_2} \times \frac{1 \text{ L}}{33,814 \cancel{\text{O}_2}} = 29,57 \text{ L}$$

16) $m = 0,6 \text{ kg}$ $V = 500 \text{ cm}^3$

$$\rho = \frac{m}{V}$$

$$m = 0,6 \cancel{\text{kg}} \times \frac{1000 \text{ g}}{1 \cancel{\text{kg}}} = 600 \text{ g}$$

$$V = 500 \text{ cm}^3 \times \frac{(100 \text{ cm})^3}{(1 \text{ m})^3} = 1000000 \text{ m}^3$$

$$\rho = \frac{m}{V} = \frac{900g}{1000000} = 900006 \text{ g/cm}^3$$

17) $m = 900 \text{ g}$ $V = 1,5 \cdot 10^{-4} \text{ m}^3$

$$V = 1,5 \times 10^{-4} \text{ m}^3 \times \frac{100 \text{ cm}^3}{1 \text{ m}^3} = 0,00015 \times \frac{1000000 \text{ cm}^3}{1 \text{ m}^3}$$

$$150 \text{ cm}^3$$

$$\rho = \frac{m}{V} = \frac{900g}{150 \text{ cm}^3} = 6 \text{ g/cm}^3$$

18) $m = 450 \text{ g}$ $V = 2 \text{ L}$

$$V = 2 \text{ L} \times \frac{1 \text{ m}^3}{1000 \text{ L}} \times \frac{1000 \text{ cm}^3}{1 \text{ m}^3} = 2000 \text{ cm}^3$$

$$\rho = \frac{m}{V} = \frac{450g}{2000 \text{ cm}^3} = 0,225 \text{ g/cm}^3$$

19)

$m = ?$ $V = ?$ $\text{Si } m = 500 \text{ g}$

$r = 2 \text{ cm}$ $V = \frac{4}{3} \pi r^3$

$$V = \frac{4}{3} \pi (2 \text{ cm})^3 = V = 33,5 \text{ cm}^3$$

$$\rho = \frac{m}{V} \rightarrow m = \rho V \rightarrow m = 11,9 \text{ g/cm}^3 \times 33,5 \text{ cm}^3 = 398,65 \text{ g}$$

$$S. \quad m = 500 \text{ g}$$

$$V = \frac{m}{\rho} = \frac{500 \text{ g}}{11,37 \text{ g/cm}^3} = \boxed{68,49 \text{ cm}^3}$$

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a)

$$\rho = \frac{m}{V}$$

$$m = \rho \cdot V \quad m = 0,9 \text{ g/cm}^3 \times 2 \text{ K} \times \frac{1 \text{ m}^3}{1000 \text{ K}} \times \frac{(1000 \text{ g})}{1 \text{ kg}} = \boxed{1800 \text{ g}}$$

$$m = 1800 \text{ g} \times \frac{1 \text{ kg}}{1000 \text{ g}} = \boxed{1,8 \text{ kg}}$$

b)

$$m = 2,4 \text{ K} \times \frac{1000 \text{ g}}{1 \text{ kg}} = 2400 \text{ g}$$

$$V = \frac{m}{\rho} = \frac{2400 \text{ g}}{0,9 \text{ g/cm}^3} = \boxed{2666,67 \text{ cm}^3}$$