

CAMBIO DE UNIDADES

1.- Expresa en unidades del SI las siguientes medidas:

a) $20,3 \text{ dam}^2$. $20,3 \cancel{\text{dam}}^2 \cdot \frac{1 \text{ m}^2}{10^2 \cancel{\text{dam}}^2} = 2,03 \cdot 10^{-1} \text{ m}^2$.

b) $2,5 \text{ mm}^3$. $2,5 \cancel{\text{mm}}^3 \cdot \frac{1 \text{ m}^3}{10^9 \cancel{\text{mm}}^3} = 2,5 \cdot 10^{-9} \text{ m}^3$.

c) $1,7 \text{ g/cm}^3$. $1,7 \frac{\cancel{\text{g}}}{\cancel{\text{cm}}^3} \cdot \frac{1 \text{ kg}}{10^3 \cancel{\text{g}}} \cdot \frac{10^6 \cancel{\text{cm}}^3}{1 \text{ m}^3} = 1,7 \cdot 10^3 \text{ kg/m}^3$.

d) 72 km/h . $72 \frac{\cancel{\text{km}}}{\cancel{\text{h}}} \cdot \frac{1 \cancel{\text{h}}}{3600 \text{ s}} \cdot \frac{10^3 \text{ m}}{1 \cancel{\text{km}}} = 20 \text{ m/s}$.

2.- Expresa en unidades del SI las siguientes medidas. Utiliza la notación científica.

a) 20 km/min . $20 \frac{\cancel{\text{km}}}{\cancel{\text{min}}} \cdot \frac{10^3 \text{ m}}{1 \cancel{\text{km}}} \cdot \frac{1 \cancel{\text{min}}}{60 \text{ s}} = \frac{1}{3} \cdot 10^3 \text{ m/s}$.

b) 70 cm^3 . $70 \cancel{\text{cm}}^3 \cdot \frac{1 \text{ m}^3}{10^6 \cancel{\text{cm}}^3} = 7 \cdot 10^{-5} \text{ m}^3$.

c) $1,3 \text{ g/ml}$. $1,3 \frac{\cancel{\text{g}}}{\cancel{\text{ml}}} \cdot \frac{1 \text{ kg}}{10^3 \cancel{\text{g}}} \cdot \frac{10^3 \cancel{\text{ml}}}{1 \cancel{\text{l}}} \cdot \frac{1 \cancel{\text{l}}}{1 \cancel{\text{dm}}^3} \cdot \frac{10^3 \cancel{\text{dm}}^3}{1 \text{ m}^3} = 1,3 \text{ kg/m}^3$.

d) $63,5 \text{ cm}^2$. $63,5 \cancel{\text{cm}}^2 \cdot \frac{1 \text{ m}^2}{10^4 \cancel{\text{cm}}^2} = 6,35 \cdot 10^{-3} \text{ m}^2$.

e) $245,8 \text{ dm}^3$. $245,8 \cancel{\text{dm}}^3 \cdot \frac{1 \text{ m}^3}{10^3 \cancel{\text{dm}}^3} = 2,5 \cdot 10^{-1} \text{ m}^3$.

f) $0,8 \text{ g/cm}^3$. $0,8 \frac{\cancel{\text{g}}}{\cancel{\text{cm}}^3} \cdot \frac{1 \text{ kg}}{10^3 \cancel{\text{g}}} \cdot \frac{10^6 \cancel{\text{cm}}^3}{1 \text{ m}^3} = 8 \cdot 10^2 \text{ kg/m}^3$.

g) 5 cm^3 . $5 \cancel{\text{cm}}^3 \cdot \frac{1 \text{ m}^3}{10^6 \cancel{\text{cm}}^3} = 5 \cdot 10^{-6} \text{ m}^3$.

h) $0,02 \text{ g/cm}^3$. $0,02 \frac{\cancel{\text{g}}}{\cancel{\text{cm}}^3} \cdot \frac{1 \text{ kg}}{10^3 \cancel{\text{g}}} \cdot \frac{10^6 \cancel{\text{cm}}^3}{1 \text{ m}^3} = 2 \cdot 10^1 \text{ kg/m}^3$.

i) $0,05 \text{ km}^2$. $0,05 \cancel{\text{km}}^2 \cdot \frac{10^6 \text{ m}^2}{1 \cancel{\text{km}}^2} = 5 \cdot 10^4 \text{ m}^2$.

3.- Realiza los siguientes cambios de unidades:

a) 25 cm^3 a m^3 . $25 \cancel{\text{cm}}^3 \cdot \frac{1 \text{ m}^3}{10^6 \cancel{\text{cm}}^3} = 2,5 \cdot 10^{-5} \text{ m}^3$.

b) 5 kg/m^3 a g/cm^3 . $5 \frac{\cancel{\text{kg}}}{\cancel{\text{m}}^3} \cdot \frac{10^3 \text{ g}}{1 \cancel{\text{kg}}} \cdot \frac{1 \cancel{\text{m}}^3}{10^6 \cancel{\text{cm}}^3} = 5^{-3} \text{ g/cm}^3$.

c) 10 km/h a m/s . $10 \frac{\cancel{\text{km}}}{\cancel{\text{h}}} \cdot \frac{10^3 \text{ m}}{1 \cancel{\text{km}}} \cdot \frac{1 \cancel{\text{h}}}{3600 \text{ s}} = \frac{1}{36} \cdot 10^2 \text{ m/s} = \frac{25}{9} \text{ m/s}$.

d) 7 m/s a km/h . $7 \frac{\cancel{\text{m}}}{\cancel{\text{s}}} \cdot \frac{1 \text{ km}}{10^3 \cancel{\text{m}}} \cdot \frac{3600 \cancel{\text{s}}}{1 \text{ h}} = 2,52 \cdot 10 \text{ km/h}$.

e) 30 cm^2 a m^2 . $30 \cancel{\text{cm}}^2 \cdot \frac{1 \text{ m}^2}{10^4 \cancel{\text{cm}}^2} = 3 \cdot 10^{-3} \text{ m}^2$.

f) $5 \cdot 10^{-4} \text{ t}$ a g . $5 \cdot 10^{-4} \cancel{\text{t}} \cdot \frac{10^6 \text{ g}}{1 \cancel{\text{t}}} = 5 \cdot 10^2 \text{ g}$.

g) 10 kg/m^3 a g/cm^3 . $10 \frac{\cancel{\text{kg}}}{\cancel{\text{m}}^3} \cdot \frac{10^3 \text{ g}}{1 \cancel{\text{kg}}} \cdot \frac{1 \cancel{\text{m}}^3}{10^6 \text{ cm}^3} = 1 \cdot 10^{-2} \text{ g/cm}^3$.

h) 5 mg/cm^3 a kg/l . $5 \cdot \frac{\cancel{\text{mg}}}{\cancel{\text{cm}}^3} \cdot \frac{1 \text{ kg}}{10^6 \cancel{\text{mg}}} \cdot \frac{10^3 \cancel{\text{cm}}^3}{1 \cancel{\text{dm}}^3} \cdot \frac{1 \cancel{\text{dm}}^3}{1 \text{ l}} = 5 \cdot 10^{-3} \text{ kg/l}$.

i) 120 m/s a cm/h . $120 \frac{\cancel{\text{m}}}{\cancel{\text{s}}} \cdot \frac{3600 \cancel{\text{s}}}{1 \text{ h}} \cdot \frac{10^2 \text{ cm}}{1 \cancel{\text{m}}} = 4,32 \cdot 10^7 \text{ cm/h}$.