

Porcentagem

$$\% = \frac{1}{100}$$

$$2 = 2 \times 100 \times \frac{1}{100} = 2 \times 100 \times \% = 200\%$$

$$5\% = 5 \times \frac{1}{100} = 0.05$$

Varição absoluta

$$\Delta m = m_f - m_i$$

Varição relativa

$$\frac{\Delta m}{m_i} = \frac{m_f - m_i}{m_i} = \frac{m_f}{m_i} - 1$$

$\frac{m_f}{m_i} = F$ factor
 $x_i = 5, x_f = 10$

$$\Delta x = 10 - 5 = 5$$

$$\frac{\Delta x}{x_i} = \frac{5}{5} = 1 = 1 \times 100 \times \frac{1}{100} = 100\%$$

$x_i = 5, x_f = 6$

$$\frac{\Delta x}{x_i} = \frac{1}{5} = \frac{1}{5} \times 100 \times \frac{1}{100} = 20\%$$

$x_i = 6, x_f = 5$

$$\frac{\Delta x}{x_i} = \frac{-1}{6} = -\frac{1}{6} \times 100 \times \frac{1}{100} = -17\%$$

Proporção directa

$$y = 2x$$

Linear

$$y = 2x + 1$$

Ordem de grandeza

$$2 \sim 10^0$$

$$20 \sim 10^1$$

$$9 \sim 10^1$$

$$2 = \underline{2} \times 10^0$$

Mantissa M

$$1 \leq M < 10$$

$$10^0 \leq M < 10^1$$

$$234 = 2.34 \times 100 = 2.34 \times 10^2$$

$$2 = \underline{2} \times 10^0 \sim 10^0$$

valor crítico

$$10^{0.5} \times 10^0$$

$$10^{0.5} = \sqrt{10} = 3.16$$

$$4234 = 4.234 \times 10^3 \sim 10^{1+3} = 10^4$$

$$10^{0.5} \simeq 10^1$$

$$10^{0.4} \simeq 10^0$$

$$2552 = 2.552 \times 10^3 \sim 10^3$$

$$0.00049 = 4.9 \times 10^{-4}$$

$$4.9 = 4.9 \times 10^0$$

$$0.49 = 4.9 \times 10^{-1}$$

$$0.049 = 4.9 \times 10^{-2}$$

$$0.0049 = 4.9 \times 10^{-3}$$

$$0.00049 = 4.9 \times 10^{-4} \sim 10^{+1-4} = 10^{-3}$$

$$2.58 = 2.58 \times 10^0 \sim 10^0$$

$$0.07 = 7 \times 10^{-2} \sim 10^{-1}$$

diferença

$$0 - (-1) = 1$$

$$\frac{1.2 \times 10^{-3}}{4.8 \times 10^{-5}} \sim \frac{10^{-3}}{10^{-4}} = 10^1$$

$$70 \frac{\text{bats}}{\text{min}}$$

75 anos

$$70 \frac{\text{bats}}{\text{min}} \times \frac{60 \text{ min}}{1 \text{ h}} \times \frac{24 \text{ h}}{1 \text{ dia}} \times \frac{365 \text{ dia}}{1 \text{ ano}} \times 75 \text{ ano}$$

$$\sim 10^2 \times 10^2 \times 10^1 \times 10^3 \times 10^2 = 10^{10}$$

Número de células no corpo humano

$$V_c = 2000 \mu\text{m}^3$$

$$V = 70 \text{ L}$$

prefixos

deci - 10^{-1}

centi - 10^{-2}

micro - 10^{-6}

$$N = \frac{V}{V_c} = \frac{70 \text{ dm}^3}{2000 \mu\text{m}^3} = \frac{70 \times 10^{-3} \text{ m}^3}{2000 \times 10^{-18} \text{ m}^3}$$

Conversão de L para m^3 :

$$1 \text{ L} = 1 \text{ dm}^3 = 1 (\text{dm})^3$$

$$1 (\text{dm})^3 = 1 (10^{-1} \text{ m})^3$$

$$10^{-3} \text{ m}^3$$

Conversão de μm^3 para m^3 :

$$1 \mu\text{m}^3 = 1 (\mu\text{m})^3$$

$$1 (\mu\text{m})^3 = 1 (10^{-6} \text{ m})^3$$

$$10^{-18} \text{ m}^3$$

Ordem de grandeza

$$N = \frac{7.0 \times 10^{-2} \text{ m}^3}{2.000 \times 10^{-18} \text{ m}^3} \sim \frac{10^{-1}}{10^{-18}} = 10^{14}$$