

SOLUCION TEMA 3:

$$\textcircled{1} -4^{-1} = \boxed{-\frac{1}{4}} ; (-1)^{-2} = \frac{1}{(-1)^2} = \frac{1}{1} = \boxed{1} ;$$

$$(-2)^{-3} = \frac{1}{(-2)^3} = \boxed{-\frac{1}{8}} ; (-3)^3 = \boxed{-27} \quad -3^2 = -(3)^2 = \boxed{-9}$$

$$\left(\frac{1}{2}\right)^{-3} = \left(\frac{2}{1}\right)^3 = \boxed{8} ; 8^{-3} = \frac{1}{8^3} = \boxed{\frac{1}{512}} ; \frac{1}{3^{-4}} = 3^4 = \boxed{81} ;$$

$$\left(\frac{4}{3}\right)^0 = \boxed{1} ; \left(-\frac{1}{2}\right)^{-2} = \left(-\frac{2}{1}\right)^2 = \boxed{4} ; -2^{-2} = -(2)^{-2} = -\frac{1}{2^2} = \boxed{-\frac{1}{4}}$$

$$\left(\frac{5}{2}\right)^{-3} = \left(\frac{2}{5}\right)^3 = \boxed{\frac{8}{125}}$$



$$\textcircled{2} \text{ a) } 1,2 \cdot 10^6 \quad \text{b) } 3,23 \cdot 10^9 \quad \text{c) } 1,32 \cdot 10^{-9}$$

$$\text{d) } 4,5 \cdot 10^{-7} \quad \text{e) } 5,1423 \cdot 10^7 \quad \text{f) } 1,2352 \cdot 10^{2+5} = \boxed{1,23 \cdot 10^7}$$

$$\text{g) } 1,245 \cdot 10^{-2} \cdot 10^9 = \boxed{1,245 \cdot 10^7} \quad \text{h) } 5,4376 \cdot 10^5 \cdot 10^8 = \boxed{5,4376 \cdot 10^{13}}$$

$$\text{i) } 1,245 \cdot 10^{-2} \cdot 10^5 = \boxed{1,245 \cdot 10^3} ; \text{j) } 4 \cdot 10^{-6} \quad \text{k) } 5,4376 \cdot 10^{-3}$$

$$\text{l) } 3 \cdot 10^{-3} \quad \text{m) } 2,5 \cdot 10^6$$

$$\text{n) } (1,2 \cdot 7) \cdot 10^{5-3} = \boxed{8,4 \cdot 10^2} ; \bar{\text{n}}) \frac{5 \cdot 10^6}{4 \cdot 10^4} = \frac{5}{4} \cdot 10^2 = \boxed{1,25 \cdot 10^2}$$

$$\text{o) } (3 \cdot 2) \cdot 10^{-5-3} = \boxed{6 \cdot 10^{-8}}$$

$$\text{p) } \frac{7}{4} \cdot 10^{8-(-3)} = \boxed{1,75 \cdot 10^{11}}$$

$$\text{q) } \frac{3,5 \cdot 10^{-5}}{7 \cdot 10^{10}} = \frac{3,5 \cdot 10^{-6}}{7 \cdot 10^{10}} = 5 \cdot 10^{-6-10} = \boxed{5 \cdot 10^{-16}}$$

$$\text{r) } 8,2 \cdot 10^{-6} \cdot 4 \cdot 10^{-7} = 32,8 \cdot 10^{-13} = \boxed{3,28 \cdot 10^{-12}}$$

Continuación 2

$$s) 2,2 \cdot 10^{-9} \text{ m} \quad t) 6,4 \cdot 10^9 \text{ personas} \quad u) 5,3 \cdot 10^{-23} \text{ g}$$

$$y) 4 \cdot 10^9 \text{ m} \quad z) 8 \cdot 10^{10} \text{ m} \quad \alpha) \frac{8 \cdot 10^{10}}{4 \cdot 10^9} = 2 \cdot 10 = \text{20 veces}$$

$$\beta) 5,49 \cdot 10^{10} \text{ kg} \quad \delta) 1,2 \cdot 10^6 \text{ L/s} \quad \epsilon) 3 \cdot 10^8 \text{ km}$$

$$E) \frac{18 \text{ g}}{6 \cdot 10^{23} \text{ mole.}} = \frac{18}{6} \cdot 10^{-23} \text{ g/molécula} = 3 \cdot 10^{-23} \text{ g/molécula.}$$

$$\mu) \frac{8,5 \cdot 10^6 \cdot 10^3 \text{ kg}}{46 \cdot 10^6 \text{ personas}} = \frac{85 \cdot 10^5 \cdot 10^3 \text{ kg}}{46 \cdot 10^6 \text{ pers.}} = 1,84783 \cdot 10^2 \frac{\text{kg}}{\text{habit.}}$$

$$\theta) \frac{6 \cdot 10^{24} \text{ kg}}{7,5 \cdot 10^{22} \text{ kg}} = \frac{60 \cdot 10^{23}}{7,5 \cdot 10^{22}} = 8 \cdot 10 = \boxed{80} \text{ veces}$$

$$\textcircled{3} \text{ a) } 2^{3+5} = \boxed{2^8} ; \text{ b) } 6^{-3+(-3)} = 6^{-6} = \boxed{\frac{1}{6^6}} ; \text{ c) } 6^{2-(-4)} = \boxed{6^6}$$

$$\text{d) } 10^{2-4} = 10^{-2} = \boxed{\frac{1}{10^2}} ; \text{ e) } (2 \cdot 3 \cdot 7)^{-2} = 42^{-2} = \boxed{\frac{1}{42^2}}$$

$$\text{f) } (3 \cdot 6)^4 : 18^{-3} = 18^4 : 18^{-3} = 18^{4-(-3)} = \boxed{18^7}$$

$$\text{g) } (35 : 5)^3 \cdot 7^{-3} = 7^3 \cdot 7^{-3} = 7^{3-3} = 7^0 = \boxed{1}$$

$$\text{h) } (8 : 2)^2 : 4^{-2} = 4^2 : 4^{-2} = 4^{2-(-2)} = \boxed{4^4} ; \text{ i) } 3^{-6} = \boxed{\frac{1}{3^6}}$$

$$\text{j) } 2^{-6} = \boxed{\frac{1}{2^6}} ; \text{ k) } 2^{-8} = \boxed{\frac{1}{2^8}} ; \text{ l) } \boxed{5^6}$$

$$④ \text{ a) } \frac{5^2 \cdot 5^{-6} \cdot 5^4}{5^0 \cdot 5^{-5} \cdot 5^4} = \frac{5^{2-6+4}}{5^{-5+4}} = \frac{5^0}{5^{-1}} = \frac{1}{5^{-1}} = \boxed{5^+1} = \boxed{5}$$

$$\text{b) } \frac{2^{5-7}}{2^{-4}} = \frac{2^{-2}}{2^{-4}} = 2^{-2-(-4)} = \boxed{2^2}$$

$$\text{c) } \frac{2^{-1} \cdot 2^{-15} \cdot 2}{2^7} = \frac{2^{-1-15+1}}{2^7} = \frac{2^{-15}}{2^7} = 2^{-15-7} = \boxed{2^{-22}}$$

$$\text{d) } \frac{7^{-3-1+4}}{(7^7)^2} = \frac{7^0}{7^{14}} = \frac{1}{7^{14}} = \boxed{7^{-14}}$$

$$\text{e) } [2^{-3-(-2)}]^{-1} = (2^{-1})^{-1} = \boxed{2}$$

$$⑤ \text{ a) } \sqrt{9^2} = \boxed{9} \quad ; \text{ b) } -\sqrt[3]{2^6} = -\sqrt[3]{(2^2)^3} = -2^2 = \boxed{-4}$$

$$\text{c) } \sqrt[3]{-1000} = -\sqrt[3]{10^3} = \boxed{-10} \quad ; \quad \text{d) } \sqrt[3]{2^3 \cdot 3^3} = \sqrt[3]{(2 \cdot 3)^3} = 2 \cdot 3 = \boxed{6}$$

$$\text{e) } \sqrt{2^4 \cdot 3^2} = \sqrt{(2^2 \cdot 3)^2} = 2^2 \cdot 3 = \boxed{12} \quad ; \quad \text{f) } -\sqrt{64} = -\sqrt{8^2} = \boxed{-8}$$

$$\text{g) } \sqrt{\frac{16}{25}} = \sqrt{\frac{2^4}{5^2}} = \sqrt{\left(\frac{2^2}{5}\right)^2} = \frac{2^2}{5} = \boxed{\frac{16}{5}}$$

$$\text{h) } \sqrt[3]{\frac{64}{216}} = \sqrt[3]{\frac{2^6}{2^3 \cdot 3^3}} = \sqrt[3]{\frac{2^3}{3^3}} = \sqrt[3]{\left(\frac{2}{3}\right)^3} = \boxed{\frac{2}{3}}$$

$$\text{j) } \sqrt[3]{2^{12}} = \sqrt[3]{(2^4)^3} = 2^4 = \boxed{16} \quad ; \quad \text{i) } \sqrt[3]{-27} = -\sqrt[3]{27} = -\sqrt[3]{3^3} = \boxed{-3}$$

$$\text{k) } \sqrt{3^8} = \sqrt{(3^4)^2} = 3^4 = \boxed{81} \quad ; \quad \text{l) } \sqrt[3]{\frac{2^3}{5^3}} = \sqrt[3]{\left(\frac{2}{5}\right)^3} = \boxed{\frac{2}{5}}$$

$$\text{m) } \sqrt[4]{3^4} = \boxed{3} \quad ; \quad \text{n) } \sqrt[3]{\left(\frac{1}{2}\right)^3} = \boxed{\frac{1}{2}} \quad ; \quad \text{ñ) } \sqrt[3]{-1} = -\sqrt[3]{1} = \boxed{-1}$$

$$\text{o) } \sqrt[11]{1} = 1 \quad ; \quad \text{p) } \sqrt[20]{0} = 0 \quad ; \quad \text{q) } -\sqrt[6]{1} = -1 \quad ; \quad \text{r) } \sqrt[5]{10^5} = \boxed{-10}$$

Continuación (5)

$$s) \sqrt[4]{2^4} = \boxed{2} ; t) \sqrt[5]{(7^3)^5} = 7^3 ; u) \sqrt[4]{(5^2)^4} = \boxed{5^2}$$

$$v) \sqrt[3]{(5^3)^3} = \boxed{5^3} ; x) \sqrt[4]{(11^2)^4} = \boxed{11^2}$$

$$j) \sqrt{\frac{25}{100}} = \sqrt{\frac{5^2}{10^2}} = \sqrt{\left(\frac{5}{10}\right)^2} = \frac{5}{10} = \boxed{\frac{1}{2}} = \boxed{0,5}$$

$$z) \sqrt[3]{10^{-3}} = \sqrt[3]{(10^{-1})^3} = 10^{-1} = \boxed{\frac{1}{10}} = \boxed{0,1}$$

$$\alpha) \sqrt[3]{\frac{125}{1000}} = \sqrt[3]{\frac{5^3}{10^3}} = \sqrt[3]{\left(\frac{5}{10}\right)^3} = \frac{5}{10} = \boxed{\frac{1}{2}} = \boxed{0,5}$$

$$\beta) \sqrt[3]{0,064} = \sqrt[3]{\frac{64}{1000}} = \sqrt[3]{\frac{2^6}{2^3 \cdot 5^3}} = \sqrt[3]{\frac{2^3}{5^3}} = \sqrt[3]{\left(\frac{2}{5}\right)^3} = \boxed{\frac{2}{5}} = \boxed{0,4}$$

$$\gamma) \sqrt{144} = \sqrt{2^4 \cdot 3^2} = \sqrt{(2^2 \cdot 3)^2} = 2^2 \cdot 3 = \boxed{12}$$

$$\delta) \sqrt[3]{\frac{8}{1000}} = \sqrt[3]{\frac{2^3}{10^3}} = \sqrt[3]{\left(\frac{2}{10}\right)^3} = \frac{2}{10} = \boxed{\frac{1}{5}} = \boxed{0,2}$$

Se atopades algún erro avisade:

Gracias e a traballo