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matematica (Propriedades radicais)

① Calculando $\left(\dfrac{-1}{243}\right)^{\frac{2}{5}}$, obtém-se

$$\left(\dfrac{-1}{243}\right)^{-\frac{2}{5}} = (-243)^{\frac{2}{5}} = \left[(-3)^5\right]^{\frac{2}{5}} = (-3)^{\frac{10}{5}}$$

$$(-3)^2 = 9$$

243	3
81	3
27	3
9	3
3	3
1	

$\boxed{C = 9}$

② $4^{0,5(2^{0,5})^2} = 4^{0,5 \cdot 2^2 \cdot 95} = 4^{0,5 \cdot 2^1} = 4^{0,5 \cdot 2} = 4^{0,25} = 4^{\frac{25}{100}}$

$\sqrt[100]{4^{25}} = \sqrt[100]{(4)^{25}} = \sqrt[100]{2^{50}} = \sqrt{2} = 2^{\frac{1}{2}}$ $C - \sqrt{2}$

③ $\sqrt[4]{8} = 1,68$, o valor mais próximo de $\sqrt[4]{\dfrac{0,09}{\sqrt{2}}}$ é

$\sqrt[4]{8} = 1,68 \to \sqrt[4]{2^3} = 1,68$

$\sqrt[4]{\dfrac{0,09}{\sqrt{2}}} = \sqrt[4]{0,09} = \sqrt[4]{\dfrac{9}{100}} = \dfrac{\sqrt[4]{9}}{\sqrt[4]{100}} \cdot \dfrac{0,3}{\sqrt{2}} = \dfrac{0,3 \cdot \sqrt[4]{2^3}}{\sqrt[4]{2} \cdot \sqrt[4]{2^3}} = \dfrac{0,3 \cdot 1,68}{\sqrt[4]{2^4}}$

$= 0,252$ $\boxed{= 0,252 \quad B}$

$$\boxed{B = 0,252}$$

④ O vala da expressão $\dfrac{2 - \sqrt{2}}{\sqrt{2} - 1}$ é

$$\dfrac{2 - \sqrt{2}}{(\sqrt{2} - 1)} \cdot \dfrac{\sqrt{2} + 1}{(\sqrt{2} + 1)} = \dfrac{2\sqrt{2} + 2 - 2 - \sqrt{2}}{(\sqrt{2})^2 - 1^2} = \dfrac{\sqrt{2}}{2 - 1} = \dfrac{\sqrt{2}}{1}$$

$$\boxed{A = \sqrt{2}}$$

⑤ $\dfrac{10}{\sqrt{18} + 2\sqrt{2}}$ obtém-se

$$\dfrac{10}{3\sqrt{2} + 2\sqrt{2}} = \dfrac{10}{5\sqrt{2}} = \dfrac{2}{\sqrt{2}} \cdot \dfrac{\sqrt{2}}{\sqrt{2}} = \dfrac{2\sqrt{2}}{2} = \sqrt{2}$$

$$\boxed{A = \sqrt{2}}$$

⑥ Assinale a correta

$I - \sqrt[3]{-27} = -3$ ✓
$(-3)^3 = -27$

$\boxed{C = I \; e \; \underline{III}}$

$II - 5^{-\frac{1}{2}} = \sqrt{5}.$
$\sqrt{5}^{-1} \neq \sqrt{5} \quad F$

$III - \dfrac{1}{\sqrt{3}} = \dfrac{\sqrt{3}}{3}$

$\dfrac{1}{3} \cdot \dfrac{\sqrt{3}}{\sqrt{3}} = \dfrac{1}{\sqrt{2}} \cdot \dfrac{\sqrt{3}}{\sqrt{3}} = \dfrac{\sqrt{3}}{3} = V$

$IV = \sqrt[3]{8} = 2^{\frac{3}{5}} \cdot \sqrt{2} = \sqrt{5} = F$

⑦ A soma $\sqrt{\dfrac{3}{4}} + \sqrt{\dfrac{4}{3}}$ é igual a:

$\sqrt{\dfrac{3}{4}} + \sqrt{\dfrac{4}{3}} = \dfrac{\sqrt{3}}{2} + \dfrac{2}{\sqrt{3}} = \dfrac{\sqrt{3}}{2} \cdot \dfrac{\sqrt{3}}{\sqrt{3}} \cdot \dfrac{\sqrt{3}}{2}$

$E. \dfrac{7}{6}\sqrt{3}$

$2\sqrt{3} = \dfrac{3\sqrt{3}+4\sqrt{3}}{6} = \dfrac{7\sqrt{3}}{6}$