

TEMA 1. 1º Bachillerato B

1. Racionaliza

$$a) \frac{7-\sqrt{3}}{\sqrt{5-\sqrt{2}}} = \frac{(7-\sqrt{3})(\sqrt{5-\sqrt{2}})}{\sqrt{5-\sqrt{2}}\sqrt{5-\sqrt{2}}} = \frac{(7-\sqrt{3})(\sqrt{5-\sqrt{2}})}{5-\sqrt{2}} = \frac{(7-\sqrt{3})(\sqrt{5-\sqrt{2}})(5+\sqrt{2})}{(5-\sqrt{2})(5+\sqrt{2})} =$$

$$= \frac{(7-\sqrt{3})(\sqrt{5-\sqrt{2}})(5+\sqrt{2})}{25-2} = \frac{(7-\sqrt{3})(\sqrt{5-\sqrt{2}})(5+\sqrt{2})}{23}$$

$$b) \frac{-4}{\sqrt{6}+\sqrt{8}} = \frac{-4(\sqrt{6}-\sqrt{8})}{(\sqrt{6}+\sqrt{8})(\sqrt{6}-\sqrt{8})} = \frac{-4(\sqrt{6}-\sqrt{8})}{6-8} = 2(\sqrt{6}-\sqrt{8})$$

$$c) \frac{\sqrt{3}+7}{\sqrt[7]{5}} = \frac{(\sqrt{3}+7)\sqrt[7]{5^6}}{5}$$

2. Calcula y expresa el resultado en notación científica

$$\frac{3,26 \cdot 10^{-3} \cdot 3,25 \cdot 10^{-2} + 1,532 \cdot 10^3}{(7,345 \cdot 10^2 - 8,01 \cdot 10^{-1})^3} = \frac{10,595 \cdot 10^{-5} + 1,532 \cdot 10^3}{(7345 \cdot 10^{-1} - 8,01 \cdot 10^{-1})^3} =$$

$$= \frac{1,532000106 \cdot 10^8 \cdot 10^{-5}}{(733699 \cdot 10^3 \cdot 10^{-1})^3} = \frac{1,532000106 \cdot 10^3}{394,9606068 \cdot 10^6} = 0,0387886 \cdot 10^{-3} =$$

$$= 3,87886 \cdot 10^{-5}$$

3. Escribe las aproximaciones a las millonésimas del número 8,0357856.

Calcula el error absoluto y el error relativo.

$$8,0357856 \rightarrow \text{Aprox} = 8,035786$$

$$E_A = |\text{Valor real} - \text{Aprox.}| = |8,0357856 - 8,035786| = 4 \cdot 10^{-7}$$

$$E_R = \frac{E_A}{\text{Vreal}} = \frac{4 \cdot 10^{-7}}{8,035786} = 4,977 \cdot 10^{-8}$$

4. Calcula y simplifica:

$$4 \sqrt{\frac{\sqrt{72} \cdot (\sqrt[6]{162})^3 \sqrt[3]{245}}{\sqrt[5]{750}}} = 4 \sqrt{\frac{\sqrt{2^3 \cdot 3^2} \cdot (\sqrt[6]{2^3 \cdot 3^4})^3 \sqrt[3]{5 \cdot 7^2}}{\sqrt[5]{2 \cdot 3 \cdot 5^3}}} = \frac{\sqrt[8]{2^3 \cdot 3^2} \sqrt[48]{2^3 \cdot 3^{12}} \sqrt[24]{5 \cdot 7^2}}{\sqrt[20]{2 \cdot 3 \cdot 5^3}} =$$

$$= \sqrt[240]{\frac{2^{90} \cdot 3^{60} \cdot 2^{15} \cdot 3^{60} \cdot 5^{10} \cdot 7^{20}}{2^{12} \cdot 3^{12} \cdot 5^{36}}} = \sqrt[240]{\frac{2^{105} \cdot 3^{120} \cdot 5^{10} \cdot 7^{20}}{2^{12} \cdot 3^{12} \cdot 5^{36}}} = \sqrt[240]{2^{93} \cdot 3^{108} \cdot 5^{-26} \cdot 7^{20}}$$

5. Representa en la recta real  $\sqrt{21}$ ,  $-\frac{13}{4}$

$$\sqrt{21} = \sqrt{4^2 + (\sqrt{5})^2}; \quad \sqrt{5} = \sqrt{2^2 + 1^2}$$

$$-\frac{13}{4} = -3 \frac{1}{4}$$

