

1. (1,5)Racionaliza:

a. $\frac{6+\sqrt{5}}{\sqrt{\sqrt{2}-3}}$

b. $\frac{-5}{\sqrt{5-\sqrt{2}}}$

c. $\frac{\sqrt{2}-7}{\sqrt[6]{5^2}}$

2. (1,5)Calcula y expresa el resultado en notación científica:

$$\frac{5,26 \cdot 10^{-4} \cdot 3,21 \cdot 10^{-6} + 1,632 \cdot 10^3}{(7,345 \cdot 10^2 - 8,01 \cdot 10^{-1})^3} =$$

3. (1,5) Calcula y simplifica:

$$\sqrt[5]{\frac{\sqrt{24^4 \sqrt{196} \cdot (\sqrt[5]{108})^2}}{\sqrt[6]{384}}}$$

4. (1,5) Representa en la recta real
- $\sqrt{19}$
- ,
- $-\frac{23}{7}$
- ,
- $\sqrt{52}$
- ,
- $\frac{15}{6}$

5. (1,5) Desarrolla la siguiente expresión:
- $|2x - 3| - |x - 7| =$

6. (1) Calcula utilizando fracciones generatrices:

$$2,35 + 1,2\bar{3} - 3,0\bar{9} =$$

7. (1,5) Representa en la recta real, como desigualdad, como intervalo, o como entorno

a. $E(-3, 5)$ b. $|x + 9| < 2$ c. $|x - 8| \geq 5$

TEMA 1. 1º BACHILLERATO B (2019)

$$\textcircled{1} \text{ a) } \frac{6+\sqrt{5}}{\sqrt{2}-3} = \frac{(6+\sqrt{5})(\sqrt{2}-3)}{\sqrt{2}-3} = \frac{(6+\sqrt{5})(\sqrt{2}-3)(\sqrt{2}+3)}{(\sqrt{2}-3)(\sqrt{2}+3)} =$$

$$= \frac{(6+\sqrt{5})(\sqrt{2}-3)(\sqrt{2}+3)}{2-9} = \frac{(6+\sqrt{5})(\sqrt{2}-3)(\sqrt{2}+3)}{-7}$$

$$\text{b) } \frac{-5}{\sqrt{5}-\sqrt{2}} = \frac{-5(\sqrt{5}+\sqrt{2})}{(\sqrt{5}-\sqrt{2})(\sqrt{5}+\sqrt{2})} = \frac{-5(\sqrt{5}+\sqrt{2})}{5-2} = \frac{-5(\sqrt{5}+\sqrt{2})}{3}$$

$$\text{c) } \frac{\sqrt{2}-7}{\sqrt[6]{5^2}} = \frac{(\sqrt{2}-7)\sqrt[6]{5^4}}{5}$$

$$\textcircled{2} \frac{5,26 \cdot 10^{-4} \cdot 3,21 \cdot 10^{-6} + 1,632 \cdot 10^3}{(7,345 \cdot 10^2 - 8,01 \cdot 10^{-1})^3} = \frac{16,8846 \cdot 10^{-10} + 1,632 \cdot 10^3}{(7345 \cdot 10^{-1} - 8,01 \cdot 10^{-1})^3} =$$

$$= \frac{16,8846 \cdot 10^{-10} + 1632000000000 \cdot 10^{-10}}{(7336,99 \cdot 10^{-1})^3} = \frac{1,632 \cdot 10^{13} \cdot 10^{-10}}{3,9496 \cdot 10^{11}} =$$

$$= 0,413206 \cdot 10^{-5} = 4,132058 \cdot 10^{-6}$$

$$\textcircled{3} \sqrt[5]{\frac{\sqrt{24} \sqrt[4]{196} (\sqrt[5]{108})^2}{\sqrt[6]{384}}} = \sqrt[5]{\frac{\sqrt{2^3 \cdot 3} \sqrt[4]{2^2 \cdot 7^2} (\sqrt[5]{2^2 \cdot 3^3})^2}{\sqrt[6]{2^7 \cdot 3}}} =$$

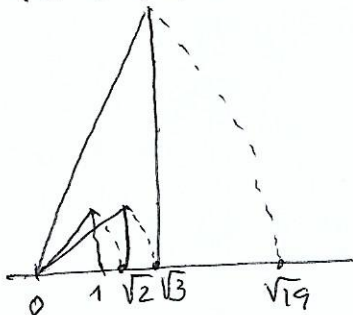
$$= \frac{\sqrt[10]{2^3 \cdot 3} \sqrt[40]{2^2 \cdot 7^2} \sqrt[50]{2^4 \cdot 3^6}}{\sqrt[30]{2^7 \cdot 3}} = \sqrt[600]{\frac{2^{180} \cdot 3^{60} \cdot 2^{30} \cdot 7^{30} \cdot 2^{48} \cdot 3^{72}}{2^{140} \cdot 3^{20}}} =$$

$$= \sqrt[600]{\frac{2^{258} \cdot 3^{132} \cdot 7^{30}}{2^{140} \cdot 3^{20}}} = \sqrt[600]{2^{118} \cdot 3^{112} \cdot 7^{30}} = \sqrt[300]{2^{59} \cdot 3^{56} \cdot 7^{15}}$$

$$\textcircled{4} \sqrt{19} = \sqrt{4^2 + (\sqrt{3})^2}$$

$$\sqrt{3} = \sqrt{1^2 + (\sqrt{2})^2}$$

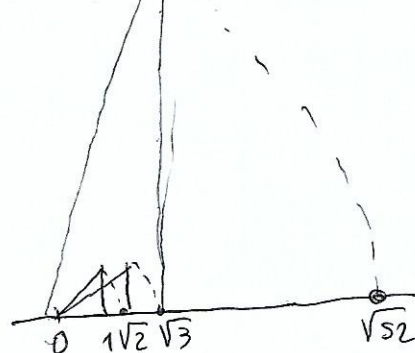
$$\sqrt{2} = \sqrt{1^2 + 1^2}$$



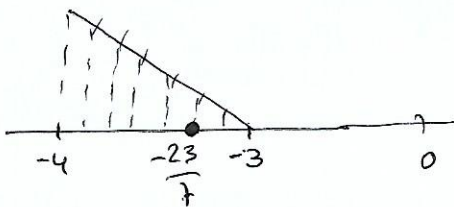
$$\sqrt{52} = \sqrt{7^2 + \sqrt{3}^2}$$

$$\sqrt{3} = \sqrt{1^2 + \sqrt{2}^2}$$

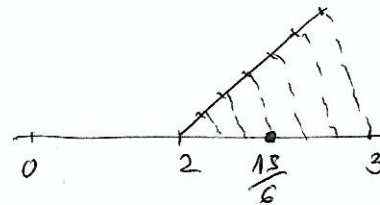
$$\sqrt{2} = \sqrt{1^2 + 1^2}$$



$$-\frac{23}{7} = -3\frac{2}{7}$$



$$\frac{15}{6} = 2\frac{3}{6}$$



$$\textcircled{5} \quad |2x-3| - |x-7| = \begin{cases} 2x-3 - x+7 & x > 7/2, x \geq 7 \\ 2x-3 + x-7 & x > 7/2, x < 7 \\ -2x+3 - x+7 & x < 7/2, x \geq 7 \\ -2x+3 + x-7 & x < 7/2, x < 7 \end{cases} =$$

$$= \begin{cases} x+4 & x \geq 7 \\ 3x-10 & \frac{3}{2} \leq x < 7 \\ -3x+10 & \cancel{\text{no}} \\ -x-4 & x < \frac{3}{2} \end{cases}$$

$$\textcircled{6} \quad 2,35 + 1,2\overline{3} - 3,0\overline{9} =$$

$$2,35 = \frac{235}{100} \quad ; \quad 1,2\overline{3} \Rightarrow \begin{array}{l} 100N = 123,3\overline{3} \dots \\ 10N = 12,3\overline{3} \dots \\ \hline 90N = 111 \\ N = \frac{111}{90} \end{array}$$

$$3,0\overline{9} \Rightarrow \begin{array}{l} 100N = 309,0\overline{9} \dots \\ N = 3,0\overline{9} \dots \\ \hline 99N = 306 \\ N = \frac{306}{99} \end{array}$$

$$\frac{235}{100} + \frac{111}{90} - \frac{306}{99} = \frac{23265 + 12210 - 30600}{9900} = \frac{4875}{9900} = \frac{65}{132}$$

$$\textcircled{7} \quad \text{a) } E(-3, 5) \Rightarrow x \in (-8, 2) \Rightarrow -8 < x < 2 \quad \begin{array}{c} \text{---} \circ \text{---} \circ \text{---} \\ -8 \quad \quad 0 \quad \quad 2 \end{array}$$

$$\text{b) } |x+9| < 2 \Rightarrow E(-9, 2) \Rightarrow x \in (-11, -7) \Rightarrow -11 < x < -7 \quad \begin{array}{c} \text{---} \circ \text{---} \circ \text{---} \\ -11 \quad \quad -7 \quad \quad 0 \end{array}$$

$$\text{c) } |x-8| \geq 5$$

$$\downarrow$$

$$|x-8| < 5 \rightarrow E(8, 5) \Rightarrow x \in (3, 13)$$

$$\text{Luego } |x-8| \geq 5 \Rightarrow (-\infty, 3] \cup [13, +\infty)$$

