

Escola PRAT

Control de Matemàtiques.

Accés a Cicles Formatius de Grau Superior.

Tema1: Aritmètica i àlgebra: Els conjunts numèrics.

RESOLUCIÓ:

1. a) $\frac{3}{4} + \frac{1}{3} \left(\frac{5}{2} - \frac{7}{6} \right) = \frac{3}{4} + \frac{1}{3} \cdot \frac{8}{6} = \frac{3}{4} + \frac{4}{9} = \frac{27}{36} + \frac{16}{36} = \frac{43}{36}.$

b) $x = 3,07\bar{2} \Rightarrow 100x = 307,2 \quad (1) \Rightarrow 1000x = 3072,2 \quad (2)$
Restant (1) de (2) , tenim: $900x = 2765$, d'on $x = \frac{2765}{900} = \frac{553}{180}.$

2. a) $2,7501 \cdot 10^{-4}$ i $5,324 \cdot 10^8.$

b) $e_a = |4,357 - 4,36| = 0,003.$

$e_r = \frac{0,003}{4,357} \cdot 100 = 0,069\%.$

3. a) $\frac{16 \cdot (2^{-3})^2}{\sqrt[3]{4}} = \frac{2^4 \cdot 2^{-6}}{\sqrt[3]{2^2}} = \frac{2^{-2}}{2^{\frac{2}{3}}} = 2^{-\frac{8}{3}}$

b) $\sqrt{2 \cdot \sqrt{2 \cdot \sqrt{2}}} = \sqrt{2 \cdot \sqrt{\sqrt{2^2} \cdot 2}} = \sqrt{2 \cdot \sqrt{2} \cdot 2^{\frac{1}{2}}} = \sqrt{2 \cdot 2^{\frac{1}{2}} \cdot 2^{\frac{1}{2}}} = \sqrt{2 \cdot 2} = \sqrt{4} = 2.$

4. a) $5\sqrt{3} - 3\sqrt{12} + 5\sqrt{27} + \sqrt{108} = 5\sqrt{3} - 3 \cdot 2\sqrt{3} + 5 \cdot 3\sqrt{3} + 6\sqrt{3} = 20\sqrt{3}$

b) $\frac{\sqrt[3]{a^2} \cdot \sqrt{a^3}}{\sqrt[6]{a}} = \frac{\sqrt[6]{a^4} \cdot \sqrt[6]{a^9}}{\sqrt[6]{a}} = \frac{\sqrt[6]{a^{13}}}{\sqrt[6]{a}} = \sqrt[6]{a^{12}} = a^2$

5. a) $\log_5 \sqrt[3]{25} = x \Leftrightarrow 5^x = \sqrt[3]{25} = \sqrt[3]{5^2} = 5^{\frac{2}{3}}, \text{ d'on } x = \frac{2}{3}.$

b) $\log 1,8 = \log \frac{18}{10} = \log 18 - \log 10 = \log 2 \cdot 3^2 - 1 = \log 2 + 2 \cdot \log 3 - 1 =$
 $= 0,301030 + 2 \cdot 0,477121 - 1 = 0,255272.$