REAL NUMBERS, POWERS AND ROOTS TEST - 3° ESO

Exercise 1: (1.5 points) Work out the value of the following expressions:

a) $2.51 \cdot 10^4 - 7.43 \cdot 10^5 - 8.31 \cdot 10^7 =$

b) $-5.84 \cdot 10^{-5} - 5.13 \cdot 10^{-3} + 7.9 \cdot 10^{-6} =$

c) $(7.35 \cdot 10^4) \cdot (7.15 \cdot 10^{-5}) =$

d) $(3.72 \cdot 10^{-9}) : (9.4 \cdot 10^{-2}) =$

Exercise 2: (0.75 points) Un asteroide mu grande se dirige directo a la Tierra a una velocidad de 527m/s. Si se encuentra a una distancia de 2.5 millones de kilómetros, ¿cuánto tiempo de vida nos queda?

Exercise 3: (1 point) Classify these numbers. Which ones of them are real numbers?

$$\phi \ ; \ 20/5 \ ; \ \sqrt{-9} \ ; \ 7'22222\cdots \ ; \ -\sqrt{16} \ ; \ -5 \ ; \ \sqrt{2} \ ; \ 3/2 \ ; \ -\sqrt[3]{-8}$$

Exercise 4: (1 point) I've used Thales' theorem on a sunny day to measure the height of Mount Everest, and I got 8823m, and the Giralda in Seville, and I got 73.5m. Then I checked the Wikipedia and found out that the real measures are 8848m and 98.5m. Work out the value of the absolute and relative errors and explain the results.

Exercise 5: (1 point) Write as an interval and an inequality. Use the number line if needed

a) $[-3,1] \cap [1,4]$

b) $(-7,-3) \cup (-3,5]$

c) $-7 \leq x$

d) $[-5,-8)$

Ejercicio 6: (2.5 ptos) Efectúa y expresa en forma de raíz cuando sea posible:

a) $\frac{2}{3} + \frac{9}{5} \cdot \frac{1}{2} - \left(\frac{2}{3}\right)^{-2} + \frac{3}{10} : \frac{2}{5} =$

b) $\sqrt{2} - 8\sqrt{27} + 7\sqrt{243} - \sqrt{27} + 5\sqrt{75} =$

c) $\left(x \cdot x^{-3}\right) \cdot \left(x^{-7} : x^{-9}\right) : x^{-4} =$

d) $\left(\frac{5}{7}\right)^4 \cdot \frac{1}{7} \cdot \left(\frac{7}{5}\right)^{-5} \cdot 7^2 \cdot \left(\frac{7}{5}\right)^{-7} =$

e) $x^{-2/5} \cdot y^{6/7} \cdot x^{1/10} \cdot y^{2/3} \cdot x^2 =$

Ejercicio 7: **(1.5 ptos)** Get all the possible factors out of the roots:

a) $\sqrt[5]{80000000} =$

b) $\sqrt[7]{\frac{x^{20}y^4z^{14}}{w^9}} =$

c) $\sqrt[6]{\frac{a^{12}\cdot b^{24}}{c^8}} =$

Ejercicio 8: **(0.75 ptos)** Simplify the following expression and turn them into a single root:

$$\frac{\sqrt[4]{3^{-2}\cdot 5^3}\cdot\sqrt[3]{7^3\cdot 3^{-5}}}{\sqrt{5^4\cdot 3^{-5}}} =$$