

REAL NUMBRES, POWERS AND ROOTS TEST - 3^o ESO

Exercise 1: (1 point) A couple of weeks ago, the ExoMars spacecraft, Schiaparelli, crashed against the surface of the planet due to a computer software bug. A crying shame. Knowing that the distance between Earth and Mars is 78 339 804.97 km:

- Write that number using scientific notation.
- Find the percentage error if we approximate that value to 78 340 000 km.

Exercise 2: (1.5 points) Work out the value of the following expressions:

- $3.27 \cdot 10^8 - 5.09 \cdot 10^6 + 8.47 \cdot 10^9 =$
- $1.23 \cdot 10^{-5} - 3.29 \cdot 10^{-3} + 9.57 \cdot 10^{-4} =$
- $(7.38 \cdot 10^5) \cdot (4.72 \cdot 10^{-9}) =$
- $(5.64 \cdot 10^4) : (7.95 \cdot 10^{-9}) =$

Exercise 3: (1 point) Classify the following numbers

$$\sqrt{27} ; -3.12 ; 3^{-2} ; 34.9\overline{72} ; \sqrt[4]{16} ; 0.1234567\dots ; (-2)^5 ; \sqrt{-49}$$

Exercise 4: (1 point) Turn these decimal numbers into fractions:

- 14.439 =
- 7.2894 =
- 4.2525252 =
- $\sqrt{7} =$

Exercise 5: (1.5 points) Work out:

- $(2^5 \cdot 2^{-7}) : (2 : 2^3) =$
- $(x^{-4} : x^5) \cdot (x^3)^{-2} =$
- $(y \cdot y^{-3})^{-4} : y^{-8} =$

Exercise 6: (0.75 points) Work out:

- $(-2)^{-5} =$
- $\left(\frac{1}{3}\right)^{-4} =$
- $(-5)^{-2} =$

Exercise 7: (1.5 points) Work out the value of the following expressions:

- $\left(1 - \frac{3}{5}\right)^{-2} + \frac{2}{5} \cdot \frac{5}{4} - \left(\frac{2}{3} : \frac{1}{5}\right)^{-1} =$
- $\sqrt{162} - 2\sqrt{175} + 5\sqrt{128} - \sqrt{343} =$
- $\frac{2^{-10} \cdot 3^7 \cdot 2^3 \cdot 3^{-2}}{2^4 \cdot 3^{-4} \cdot 2^{-1} \cdot 3^{10}} =$

Exercise 8: (0.75 points) Simplify the following roots:

- $\sqrt{32400} =$
- $\sqrt[7]{\frac{x^{12}y^{25}z^{28}}{w^{14}}} =$

Exercise 9: (1 point) Work out, and simplify if possible:

$$\frac{\sqrt{2^3 \cdot 5^{-2}} \cdot \sqrt[6]{2^{-5} \cdot 7^{-1}}}{\sqrt[4]{5^5 \cdot 7^{-4}}} =$$