DIVISIBILITY, INTEGERS, POWERS AND ROOTS TEST - 2º ESO

Exercise 1: (1 point) The La Palma volcano has covered about 1024 ha with lava. If I were to place all the lava forming a square, how many meters would every side measure? What would its perimeter be?

3200 m on every side → 12800 m of perimeter

Exercise 2: (1 point) Work out:

a) $\left(\frac{7}{2}\right)^{-3} = \frac{8}{343}$ b) $(-3)^4 = 81$ c) $-1^{74} = -1$ d) $5^{-2} = \frac{1}{25}$

Exercise 3: (0.75 points) The Roman Emperor Claudius was born on the year 10 BC and died on the year 54 AC. How old was he? He was 64 years old

Exercise 4: (1.5 points) Work out the value of the following expressions:

a) $2\cdot 5^2 - 3\cdot\sqrt{44+5} - 4^2 - (-1)^7 = 14$

b) $7^2 - \sqrt{2\cdot 5+6} : (-2) - 3\cdot\left(\sqrt{36}-\sqrt{9}\right)^2 = 24$

Exercise 5: (2.25 points) Work out the value of the following expressions:

a) $\left(a^2\cdot a\right)^{-3}\cdot a^{10} = a$ b) $\left(x^5\cdot x^{-7}\right) : x^{-4} = x^2$

c) $\left(3^{-4}\cdot 3^{-1}\right)\cdot\left(3^{-10}\cdot 3^5\right) = \frac{1}{3^{10}}$ d) $\left(y^{-7}\cdot y\right) : \left(y\cdot y^5\right) = \frac{1}{y^{12}}$

e) $2^3\cdot 5^2 = 200$

Exercise 6: (1.25 points) Work out the value of the following expressions:

a) $\frac{a^6\cdot b^{-7}\cdot a^9}{a^{-4}\cdot b^{-5}\cdot b} = \frac{a^{19}}{b^3}$ b) $\frac{18^{-3}\cdot 2^4}{9^{-2}\cdot 6^5\cdot 3^{-1}} = \frac{1}{2^4\cdot 3^6}$

Exercise 7: (1.75 points) Work out:

a) $\sqrt[4]{1600\,000\,000} = 200$ b) $\sqrt{5184} = 72$

c) $\sqrt[5]{\frac{x^{15}\cdot y^{-35}}{w^{-40}}} = \frac{x^3 w^8}{y^7}$ d) $\sqrt[3]{343\,000} = 70$

Exercise 8: (0.5 points) Work out the highest common factor of 25 and 81 $hcf(25,81) = 1$