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

Exercise 1: (2.5 points) Work out the value of the following expressions:

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

b) $\left(y^6 \cdot y^{-8}\right) : y^{-5} = y^3$

c) $\left(a^{-3} \cdot a\right) \cdot \left(a^{-9} \cdot a^4\right) = \frac{1}{a^7}$

d) $\left(z^{-8} \cdot z^2\right) : \left(z \cdot z^7\right) = \frac{1}{z^{14}}$

e) $2 + 2^2 + 2^3 = 14$

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

a) $\frac{x^2 \cdot y^{-9} \cdot x^{-7}}{x^4 \cdot y^{-2} \cdot y} = \frac{1}{x^7 y^8}$

b) $\frac{15^{-3} \cdot 3^5}{27^{-2} \cdot 25^5} = \frac{3^8}{5^{13}}$

Exercise 3: (0.75 points) The Greek mathematician Archimedes was born on the year 287 BC and died on the year 212 BC. How old was he? **He was 75 years old**

Exercise 4: (1 point) Work out the value of these powers:

a) $2^{-3} = \frac{1}{8}$

b) $-5^2 = -25$

c) $(-2)^4 = 16$

d) $\left(\frac{5}{7}\right)^{-2} = \frac{49}{25}$

Exercise 5: (1.75 points) Work out:

a) $\sqrt{3969} = 63$

b) $\sqrt[5]{3200000} = 20$

c) $\sqrt[3]{27\,000\,000} = 300$

d) $\sqrt[7]{\frac{a^{14} \cdot b^{-42}}{c^{-63}}} = \frac{a^2 c^9}{b^6}$

Exercise 6: (1.5 points) Work out the value of the following expressions:

a) $1 + 3 \cdot 5^2 - \sqrt{21+4} - (-2)^2 = 67$

b) $\left(\sqrt{64} - \sqrt{36}\right)^3 - 3^2 - \sqrt{100} : (-2) = 4$

Exercise 7: (1 point) I'm gonna bake cookies for Halloween and I have a square tray where I can place a total of three hundred and twenty-four equal cookies, all ordered, no mess allowed. How many cookies are there on each side of the tray? If I want to sell each cookie for 0.75€, how much money will I get?

There are 18 cookies on each side and I will get 243€ in total