

NATURAL NUMBERS, DIVISIBILITY, POWERS AND ROOTS

Exercise 1: (0.75 points) I want to buy three shirts, 8€ each, two trousers, 15€ each and a pair of shoes, 25€. I have 75€, do I have enough money?

Exercise 2: (0.75 points) Tengo 45 caramelos de menta y 60 de fresa. Quiero formar paquetes con ellos, lo más grandes posible y de forma que sean todos iguales. ¿Cuántos paquetes puedo hacer? ¿Cuántos caramelos hay en cada paquete?

Exercise 3: (1.5 points) Work out:

- a) $\text{lcm}(60, 84) =$
- b) $\text{hcf}(105, 231) =$
- c) $\text{hcf}(27, 80) =$

Exercise 4: (0.75 points) Determine if the numbers 15015, 75900 and 19251 are divisible by 2, 3, 5, 10 or 11

Exercise 5: (0.5 points) Round the following numbers using scientific notation:

- a) 724 893 469 000 000 to four significant figures
- b) 9 420 000 000 000 000 000 to two significant figures

Exercise 6: (2 points) Work out the value of the following expressions:

- a) $(a^9 \cdot a^2) : (a^3 : a) =$
- b) $(x \cdot x^3)^3 : (x^7 \cdot x^5) =$
- c) $\frac{2^7 \cdot 3 \cdot 3^7 \cdot 2^3}{3^4 \cdot 2^8 \cdot 3^3} =$
- d) $\frac{14^5 \cdot 49^2}{2^2 \cdot 7^3} =$

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

- a) $5 + 4 \cdot \sqrt{25} - (\sqrt{36} - \sqrt{9})^2 + (5 - 3)^3 =$
- b) $8 : (\sqrt{17 - 1} - \sqrt{4}) + 3 \cdot 5^2 - \sqrt{98 : 2} =$

Exercise 8: (1.5 points) Find the value of the following roots:

- a) $\sqrt{2025} =$
- b) $\sqrt{2304} =$
- c) $\sqrt{49000000} =$

Exercise 9: (0.75 points) I have 57 muffins and I want to form the biggest possible square with them.

- a) How many muffins do I have to place on each side?
- b) How many muffins are left?