

### POWERS AND ROOTS TEST - 1º ESO

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

a)  $3^2 =$

b)  $1^{30} =$

c)  $2^6 =$

d)  $\left\{ \left[ (5)^4 \right]^7 \right\}^5 =$

**Exercise 2: (2 points)** Work out and express the answer as a power:

a)  $3^2 \cdot 5^3 =$

b)  $(a^5 \cdot a^6) : (a \cdot a^3)^2 =$

c)  $(5^2)^7 : (5^{10} \cdot 5^4) =$

d)  $(12^5 : 2^5) : (2^4 \cdot 3^4) =$

**Exercise 3: (0.75 points)** Work out the perimeter of a square with a surface of  $144 \text{ m}^2$

**Exercise 4: (1 point)** Find the value of x in the following expressions:

a)  $10^x = 1000000000000$

c)  $8^x = 1$

b)  $x^3 = 343$

d)  $x^{32} = 0$

**Exercise 5: (2 points)** Work out:

a)  $\frac{a^4 \cdot b^2 \cdot c^3 \cdot b^4 \cdot a^6}{b \cdot a^3 \cdot c^2} =$

b)  $\frac{x^5 \cdot y^3 \cdot x^2 \cdot y^4}{x \cdot y^2 \cdot x^6} =$

c)  $\frac{9^4 \cdot 3^5 \cdot 32}{3 \cdot 2^4} =$

d)  $\frac{2^4 \cdot 5^7 \cdot 10}{25^3 \cdot 2^2} =$

**Exercise 6: (0.75 points)** Write these numbers using scientific notation with three significant figures:

a)  $42367182351786 =$

b)  $3149728349270 =$

c)  $87243578943 =$

**Exercise 7: (1.5 points)** Work out:

a)  $5 + 2 \cdot \sqrt{29+7} - (\sqrt{81} - \sqrt{49})^3 + 3^2 =$

b)  $30 : \sqrt{25} + 5^2 - (6 - 2 \cdot 2)^3 + (2^2)^3 =$

**Exercise 8: (1 points)** I have 137 pumpkins and I want to form the largest square with them

a) How many pumpkins are there on each side?

b) How many pumpkins are left?

c) Can I make another square with the pumpkins that are left? What's its side?