

**POWERS AND ROOTS TEST - 2º ESO**

**Exercise 1: (0.75 points)** I have a square field with a surface of 196 m<sup>2</sup>.

- a) How many meters of rope do I need to round it?
- b) If every meter costs 8€, how much money do I need?

**Exercise 2: (2.25 points)** Work out:

- a)  $5 + 2 \cdot \sqrt{29 + 7} - (\sqrt{81} - \sqrt{49})^3 + 3^2 =$
- b)  $30 : \sqrt{25} + 5^2 - (6 - 2 \cdot 2)^3 + (2^2)^3 =$
- c)  $\sqrt{81} + 2 \cdot (\sqrt{12 + 4} - \sqrt{9}) + 6 \cdot 2^2 - \sqrt{100} : \sqrt{25} =$

**Exercise 3: (1.25 points)** Work out the value of these powers:

- a)  $(-5)^4 =$
- b)  $-3^2 =$
- c)  $1^8 =$
- d)  $(-2)^{-4} =$
- e)  $\left\{ \left[ \left[ (5)^4 \right]^7 \right]^5 \right\}^0 =$

**Exercise 4: (3 points)** Work out:

- a)  $3^2 \cdot 5^3 =$
- b)  $(a^5 \cdot a^6) : (a \cdot a^3)^2 =$
- c)  $(5^2)^{-7} : (5^{10} \cdot 5^6) =$
- d)  $(y^7 \cdot y^{-2}) : (y^{-3} \cdot y^5) =$
- e)  $(42^8 : 7^8) : (3^4 \cdot 2^4) =$
- f)  $(x^8 : x^{-5}) : (x^{-15} \cdot x^2) =$

**Exercise 5: (1.5 points)** Work out:

- a)  $\frac{x^5 \cdot y^3 \cdot x^2 \cdot y^4}{x \cdot y^2 \cdot x^6} =$
- b)  $\frac{15^3 \cdot 3^7 \cdot 5^4}{25^2 \cdot (3^2)^3} =$
- c)  $\frac{a^{-7} \cdot b^{11} \cdot a^{10} \cdot b^{-6}}{a^{-2} \cdot b^3} =$

**Exercise 6: (1.25 points)** Work out:

- a)  $\sqrt{12100\ 000\ 000\ 000\ 000} =$
- b)  $\sqrt[5]{5^{20} \cdot 3^{15} \cdot 2^{75}} =$
- c)  $\sqrt[4]{2560\ 000\ 000\ 000\ 000\ 000} =$
- d)  $\sqrt{32400} =$