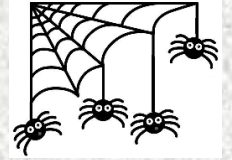




**REAL NUMBERS, POLYNOMIALS AND FRACTIONS TEST - 4º ESO**



**Exercise 1: (1 point)** Rationalize:

a)  $\frac{1}{\sqrt{2}} =$

b)  $\frac{21}{\sqrt[9]{7^4}} =$

c)  $\frac{4\sqrt{7}}{\sqrt{7}-\sqrt{3}} =$

**Exercise 2: (2 points)** Work out, express as radicals and simplify:

a)  $\sqrt[3]{5^2} \cdot \sqrt{5^7} \cdot \sqrt[4]{5^3} =$

b)  $\frac{\sqrt{2^3 \cdot 3^{-5}}}{\sqrt[9]{2^{-4} \cdot 3^7}} =$

c)  $7^{2/5} \cdot 7^{-4/3} : 7^{-2/7} =$

d)  $\sqrt{1568} + 3\sqrt{450} - 5\sqrt{128} =$

**Exercise 3: (1 point)** The Wall that defended Westeros was 555.6 km long.

- a) Find the percentage error if I round it to 550 km
- b) Do you think that's a good approximation?

**Exercise 4: (1 point)** Find the roots and factorize the polynomial:

$P(x) = x^5 + x^4 - 34x^3 - 34x^2 + 225x + 225$

**Exercise 5: (1 point)** Study the following unions and intersections of intervals:

a)  $(-\infty, 2] \cup [1, 7) =$

b)  $(-5, -2] \cap (-3, 1] =$

c)  $(3, 7) \cap [7, 12] =$

**Exercise 6: (1 point)** Work out:

a)  $2.57 \cdot 10^{-6} - 3.4 \cdot 10^{-5} + 9.28 \cdot 10^{-4} =$

b)  $(7.26 \cdot 10^{-2}) \cdot (3.97 \cdot 10^{-5}) =$

c)  $(2.71 \cdot 10^{-5}) : (7.29 \cdot 10^{-9}) =$

**Exercise 7: (3 points)** Work out the value of the following expressions:

a)  $\frac{x-2}{x^2+2x-3} - \frac{3}{1-x} - \frac{5x}{x^2-1} =$  (1.25)

b)  $\frac{(5x^3-15x^2)(x^2+6x+9)}{(x^2-9)(10x^4+30x^3)} =$  (1)

c)  $\frac{x^2-4}{x^2-1} : \frac{x^2+4x+4}{x^2-2x+1} =$  (0.75)

