

## ALGEBRA AND PROPORTION TEST - 2° ESO

**Exercise 1: (1 point)** Indicate the coefficient, the literal part and the degree of these monomials:

- a)  $\frac{7}{3}a^4bc^7$       b) *help*      c)  $-t^5$       d)  $x^{-3}$

**Exercise 2: (1 point)** Evaluate the polynomial  $P(x) = 3x^2 + 5x - 9$

- a) When  $x = 3$   
b) When  $x = -1$

**Exercise 3: (1.75 points)** Given the polynomials:

$$P(x) = 5x^3 - 4x^2 + 3x - 2 \qquad Q(x) = 7x^3 - 3x - 5 \qquad R(x) = x^2 - 3x$$

Work out the value of the following operations:

- a)  $P + Q =$   
b)  $P - Q =$   
c)  $Q \cdot R =$

**Exercise 4: (1 point)** Take out all the possible common factors:

- a)  $18x^7 + 27x^5 - 54x^4 - 9x^3 =$   
b)  $6a^2b^4c^3 - 4ab^3c^2 + 10a^7b^3c^4 =$

**Exercise 5: (1 point)** I am very happy because this year my sheep spent a very nice winter and they are giving 15% more wool than before. Yay, I can knit myself lots of jerseys :)

- a) If this year I am getting ninety-two kilos of wool, how many kilos did I get last winter?  
b) I have sixteen sheep, how many kilos of wool, in average, will I get from each one?

**Exercise 6: (1 point)** Last year, during the Solidarity Day, we took 210 students to clean the Guadalquivir shores, and they needed two hours and a half to finish the task. This year we are taking 315 students, how long is it going to take us? Express the answer with hours, minutes and seconds.

**Exercise 7: (1.5 points)** Fill in the gaps and find the value of the constant knowing that the following magnitudes are:

a) Directly proportional:

2.5	0.9	5	70	4	0.7
				28	

b) Inversely proportional:

2	6	1	18	0.5	4
			5		



**Exercise 8: (0.75 point)**

I have decided, again, to quit teaching, and I am going to cultivate potatoes. I've read on the Internet, promise, that if I have 18 plants I can get 27 kilos of potatoes, but I am planning a giant omelet to celebrate my retirement and I am going to need 48 kilos.

- a) How many plants do I need then?
- b) How many kilos of potatoes does a single plant produce?



**Exercise 9: (1 point)** Divide 1425€ in a directly proportional way to 3, 5 and 7

