

## ALGEBRA TEST - 2º ESO

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

a)  $-7a^4b^2c$

c)  $-2$

b)  $\frac{5}{4}xyz$

d)  $y^{-5}$

**Exercise 2: (2.25 points)** Given the polynomials:

$$P(x) = 7x^4 - 3x^2 + 2x - 5$$

$$Q(x) = -3x^4 - 7x^3 + 5x - 9$$

$$R(x) = 4x^2 - x$$

Work out the value of the following operations:

a)  $P + Q =$

b)  $P - Q =$

c)  $2Q - 3R =$

d)  $P \cdot R =$

**Exercise 3: (1.5 points)** Expand these expressions using quadratic multiplication formulas:

a)  $(x - 6)^2 =$

b)  $(3x + 5)^2 =$

c)  $(5x - 7)(5x + 7) =$

d)  $(2x^5y^7v^4 - x^6v)^2 =$

**Exercise 4: (1.25 points)** Work out the numerical value of the following polynomials:

a)  $P(x) = x^3 - 2x^2 + 8x - 1$  when  $x = 3$

b)  $Q(a, b) = 5ab + 2a - 3b - b^2$  when  $a = 2, b = -1$

**Exercise 5: (1.25 points)** Simplify:

a)  $x^2 + 12x + 36 =$

b)  $y^6 + 64 - 16y^3 =$

c)  $25a^{10}b^6 - 40a^5b^3c^7 + 16c^{14} =$

d)  $9y^2z^4 + 54yz^2w^3 - 81w^6 =$

e)  $49v^2 - 81 =$

**Exercise 6: (1.25 points)** Take all the common factors out of the brackets:

a)  $30a^3b^5c^7 - 6ab^2c^4 + 12a^2b^4c^5 =$

b)  $x^3y^2z^2 + x^2y^3z^2 + x^2y^2z^3 =$

c)  $-14v^4wz^3 + 28v^2w^2z^5 - 42v^3w^4x^6 =$

**Exercise 7: (0.5 points)** Simplify the trinomial  $27a^5b + 90a^3b^4 + 75ab^7$

Hint: First, take all the common factors out of the brackets