

FRACTIONS AND ALGEBRA TEST - 2º ESO

Exercise 1: (1.25 point) In a high school one third of the students play basketball and two fifths of the rest attend the music school. The remaining two hundred and sixteen students attend private lessons.

- a) What fraction of the students play basketball or attend the music school?
- b) How many students are there in the school?

Ejercicio 2: (2 ptos) Work out the value of the following expressions:

- a) $\left(\frac{2}{5} - \frac{3}{4} \cdot \frac{7}{2}\right)^{-1} : \left(\sqrt{\frac{9}{4}}\right)^{-3} =$
- b) $\left(\sqrt{\frac{16}{25}} : \frac{4}{5}\right)^{-2} + 2^{-4} - \left(\frac{1}{5}\right)^{-3} - \frac{3}{5} \cdot \frac{5}{2} =$
- c) $\frac{25a^7b^2c^5d x}{75a^2b^8c^5d^{10}} =$

Exercise 3: (1.5 points) Given the polynomials:

$$A(x) = 2x^3 - 7x^2 - 5x + 9$$

$$B(x) = -4x^3 + 7x^2 - 10$$

$$C(x) = 4x - 5$$

Work out the value of the following operations:

- a) $B - A =$
- b) $2A + B =$
- c) $B \cdot C =$

Exercise 4: (1 point) Work out the numerical value of the following polynomials:

a) $P(x) = x^4 - 2x^3 - 3x^2 + 9$ when $x = -2$

b) $Q(a, b) = 5ab - 4a - 2b^3 - b^2$ when $a = 0, b = -1$

Exercise 5: (1.5 points) Expand these expressions using notable product formulas:

a) $(y + 5)^2 =$

b) $(4x - 7y)^2 =$

c) $(8u - 4)(8u + 4) =$

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

Exercise 6: (1.5 points) Take all the common factors out of the brackets:

a) $s^3t^2w^5 - s^2t^4w + s^8t^3z^4 =$

b) $12x^4y^3z^6 - 4x^2y^3z + 20x^{10}y^7zh =$

c) $14ab^3c^3 + 21a^4bc^4 - 35a^2b^7c - 49abc =$

Exercise 7: (0.75 points) Turn into notable products:

a) $16x^2 - 56x + 49 =$

b) $y^{10} + 12y^5z + 25z^2 =$

c) $81a^2 - 49 =$

Exercise 8: (0.5 points) Escribe un monomio de grado cuatro, en seis variables y con coeficiente siete doceavos.