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 · 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.