LINEAR AND QUADRATIC EQUATIONS TEST
2° ESO

Exercise 1: (1 pto) Solve the following equations:

a) $5(2x-3)-(x-4)=4x-2(4x-1) \rightarrow x=1$

b) $4-4(x+5)+2(3x-2)=7x-5(x+4) \rightarrow \infty$ solutions

Exercise 2: (1.25 ptos) Solve the following equations:

a) $\dfrac{3x-1}{2}-x=\dfrac{x-3}{5}-\dfrac{5x-7}{4} \rightarrow x=\dfrac{33}{31}$

b) $\dfrac{9x-7}{4x+6}=\dfrac{8}{3} \rightarrow x=\dfrac{-69}{5}$

Exercise 3: (1 pto) Take out common factors:

a) $14x^7-21x^4+7x^3-42x^2=7x^2(2x^5-3x^2+x-6)$

b) $25a^5b^3-5ab^2-15a^7b^2=5ab^2(5a^4b-1-3a^6)$

Exercise 4: (1 pto) Expand using quadratic multiplication formulas:

a) $(7a^3+b)(7a^3-b)=49a^6-b^2$

b) $(5x^4+3x^2)^2=25x^8+30x^6+9x^4$

Exercise 5: (2.5 ptos) Solve the following equations:

a) $14x^2+7x=0 \rightarrow \begin{cases} x=0 \\ x=-1/2 \end{cases}$

b) $25x^2-64=0 \rightarrow x=\pm\dfrac{8}{5}$

c) $x^2-2x-15=0 \rightarrow \begin{cases} x=5 \\ x=-3 \end{cases}$

d) $x^2+6x+9=0 \rightarrow x=-3$ double

e) $3x^2-11x+10=0 \rightarrow \begin{cases} x=2 \\ x=5/3 \end{cases}$

Exercise 6: (1 pto) My seagull is pretty thin after her long journey back home, so I am going to the market to buy some fish for her. The price of a kilo of hake is 2€ more than the price of a kilo of sardines. If I buy three kilos of hake and five kilos of sardines, I will have to pay a total of thirty-four euro. What's the price of each product?   Hake: 5.5€   Sardines: 3.5€

Exercise 7: (0.75 ptos) The length of the base of a rectangle is five centimeters longer than its height, and its area measures 36 cm^2. Find its dimensions

The dimensions of the rectangle are 4 cm wide and 9 cm long or the other way round

Exercise 8: **(1.5 ptos)** Work out:

a) $(x-1)^2 - 5 = 3x - 10 \rightarrow \qquad \rightarrow \begin{cases} x = 2 \\ x = 3 \end{cases}$

b) $\dfrac{(x-2)^2}{4} = \dfrac{(x+3)^2}{9} \rightarrow \begin{cases} x = 0 \\ x = 12 \end{cases}$