EQUATIONS, INEQUALITIES AND SYSTEMS TEST - 4º ESO

Exercise 1: Solve the following equations:

    a) **(0.75 points)** $x^4 - 14x^2 + 45 = 0$
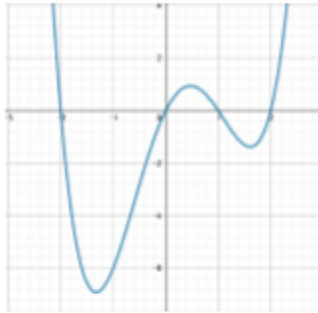
    b) **(0.75 points)** $\sqrt{2-x} - x = 10$

    c) **(1 point)** $\sqrt{3x+1} + \sqrt{x+3} = 4$

Exercise 2: **(1.5 points)** Solve these inequalities:

    a) **(1 point)** $x^3 - x^2 - 12x \le 0$

    b) **(0.5 points)** $x^4 - x^3 - 4x^2 + 4x > 0$ if its graph is given by

Exercise 3: **(2 points)** Let's face now some non-linear simultaneous equations with two variables:

    a) $\left.\begin{array}{l} x^2 - y^2 = 45 \\ 3x^2 + 2y^2 = 155 \end{array}\right\}$

    b) $\left.\begin{array}{l} xy = 30 \\ 4x^2 - y^2 = 64 \end{array}\right\}$

Exercise 4: **(3 points)** And a few simultaneous inequalities :

    a) $\left.\begin{array}{l} 3x - y < 7 \\ x - 2y \ge 4 \end{array}\right\}$

    b) $\left.\begin{array}{l} x^2 + 7x > 0 \\ 9 - x^2 \ge 0 \end{array}\right\}$

    c) $\left.\begin{array}{l} x^2 - 10x + 25 > 0 \\ x^2 - 3x + 2 \le 2x + 8 \end{array}\right\}$

Exercise 5: **(1 point)** Find the dimensions of a rectangle if its perimeter has a length of 60 m and its area measures 221 m^2

I'm gonna pass,
gimme candy