GLOBAL TEST - 2º ESO

Exercise 1: **(2.5 ptos)** Solve the following systems of equations using the indicated method:

a) $\left.\begin{array}{c} 2x - y = 10 \\ 5x + 2y = 16 \end{array}\right\}$ Substitution → $\boxed{x = 4}$ $\boxed{y = -2}$

b) $\left.\begin{array}{c} 3x - 2y = 9 \\ 5x + 3y = -4 \end{array}\right\}$ Elimination → $\boxed{x = 1}$ $\boxed{y = -3}$

c) $\left.\begin{array}{c} 2x - y = 7 \\ x + y = 8 \end{array}\right\}$ Graphically → $\boxed{x = 5}$ $\boxed{y = 3}$

Exercise 2: **(1.5 ptos)** Find the sides of a right-angled triangle knowing that the hypotenuse measures $2x - 3$ and the other two sides have lengths of x and $x - 1$

The sides measure 3, 4 and 5 whatever

Exercise 3: **(2 ptos)** Solve the following second degree equations:

a) $5x^2 - 20 = 0$ → $\boxed{x = \pm 2}$

b) $16x^2 - 49 = 0$ → $\boxed{x = \pm \dfrac{7}{4}}$

c) $4x^2 + 2x = 0$ → $\boxed{x = 0}$ $\boxed{x = -\dfrac{1}{2}}$

d) $x^2 + 2x - 3 = 0$ → $\boxed{x = 1}$ $\boxed{x = -3}$

Exercise 4: **(1.25 ptos)** Work out:

a) Evaluate the polynomial $P(x) = 3x^2 - 5x - 15$ when $x = -2$ → $\boxed{P(-2) = 7}$ $\hspace{2em}$ (0.5)

b) If $P(x) = 5x^2 - 2x - 1$ and $Q(x) = 3x - 7$, find $P \cdot Q = 15x^3 - 6x^2 + 11x + 7$ $\hspace{1em}$ (0.75)

Exercise 5: **(1 pto)** My house seems to have turned into a jungle and there's no way that I can water all the plants at the same time. This morning I watered three fifths of them, and this evening, four sevenths of the remaining ones. If I still have eighteen plants to be watered, how many of them do I have in total?
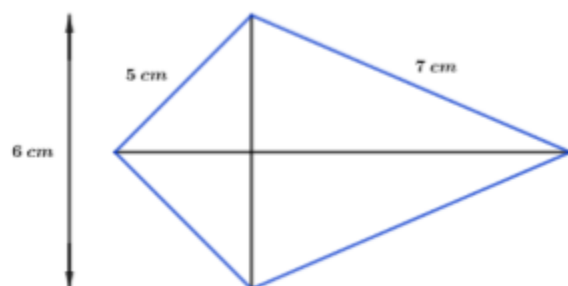
105 plants

Exercise 6: **(0.75 ptos)** Find the value of x: $\hspace{2em}$ $\boxed{x = 2.5 \text{ cm}}$
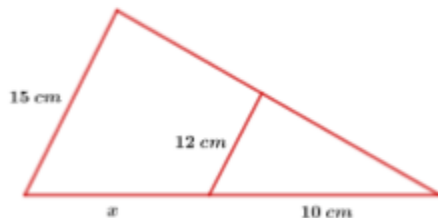
Exercise 7: **(1 pto)** Find the area of this kite knowing that the sides have lengths of 5 cm and 7 cm and the smallest diagonal measures 6 cm

5 cm

7 cm

6 cm

$$A = 30.97 \text{ cm}^2$$