



EQUATIONS AND SYSTEMS TEST

3º ESO



Exercise 1: (3 ptos) Solve the following second degree equations:

a) $5x^2 + 15x = 0 \rightarrow x = 0, x = -3$

b) $5x^2 - 80 = 0 \rightarrow x = \pm 4$

c) $25x^2 - 1 = 0 \rightarrow x = \pm \frac{1}{5}$

d) $x^2 - 3x = 0 \rightarrow x = 0, x = 3$

e) $x^2 - 14x + 49 = 0 \rightarrow x = 7$ double

f) $x^2 - 10x - 11 = 0 \rightarrow x = -1, x = 11$

Exercise 2: (2.25 ptos) Solve these equations:

a) $\frac{(4x-5)^2}{x-1} = 9 \rightarrow x = 2, x = \frac{17}{16}$ (1)

b) $(2x+1)(2x-1) - (x-1)^2 = 31 \rightarrow x = 3, x = \frac{-11}{3}$ (1.25)

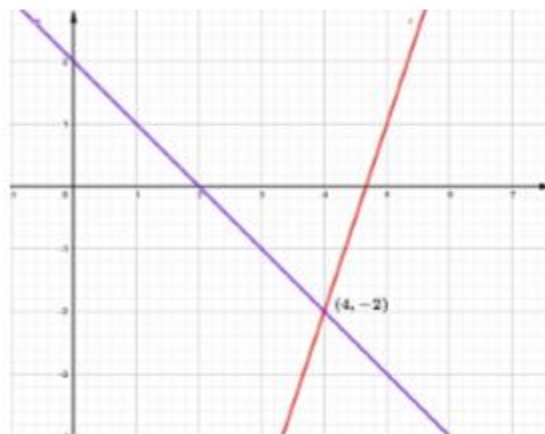
Exercise 3: (3.5 ptos) Solve and **classify** the following systems using the indicated method.

a) $\begin{cases} 5x - y = 2 \\ 10x - 2y = 1 \end{cases}$ Substitution \rightarrow ~~no~~ solution, inconsistent (0.75)

b) $\begin{cases} 3x + y = 13 \\ 5x - 3y = 31 \end{cases}$ Elimination $\rightarrow x = 5, y = -2$ Consistent independent (0.75)

c) $\begin{cases} 3x - 2y = 4 \\ 5x + 3y = 2 \end{cases} \rightarrow x = \frac{16}{19}, y = \frac{-14}{19}$ Consistent independent (0.75)

d) $\begin{cases} 3x - y = 14 \\ x + y = 2 \end{cases}$ Graphically Consistent independent



(1.25)



Exercise 4: (1.25 ptos) A couple of months ago I realized that my pink Christmas cactuses had 15 flowers but the white ones only had 10 flowers. One day I was bored, and coughing a lot, and I decided to count them. A total of 17 plants and 240 flowers. How many cactuses of each type do I have?

I have 14 cactuses with pink flowers and 3 cactuses with white flowers

