

4º MATEMÁTICAS APLICADAS. SOLUCION AL BOLETÍN 1

1) a) $3x - \frac{7-x}{8} = -1 + \frac{x-3}{4} + 2x$

$$\frac{24x}{8} - \frac{7-x}{8} = \frac{-8}{8} + \frac{2x-6}{8} + \frac{16x}{8}$$

$$24x - 7 + x = -8 + 2x - 6 + 16x$$

$$24x + x - 2x - 16x = -8 - 6 + 7$$

$$7x = -7$$

$$x = \frac{-7}{7}$$

$$\boxed{x = -1}$$

b) $5x - \frac{6x-1}{4} = 0$

$$\frac{20x}{4} - \frac{6x-1}{4} = \frac{0}{4}$$

$$20x - 6x + 1 = 0$$

$$14x = -1$$

$$\boxed{x = -\frac{1}{14}}$$

c) $\frac{5x-2}{4} - \frac{x+3}{6} = x+5$

$$\frac{15x-6}{12} - \frac{2x+6}{12} = \frac{12x+60}{12}$$

$$15x - 6 - 2x - 6 = 12x + 60$$

$$15x - 2x - 12x = 60 + 6 + 6$$

$$\boxed{x = 72}$$

2) a) $6x^2 - 4 = -2x^2 + 2x$

$$6x^2 + 2x^2 - 2x - 4 = 0$$

$$8x^2 - 2x - 4 = 0$$

$$4x^2 - x - 2 = 0$$

$$x = \frac{1 \pm \sqrt{1 - 4 \cdot 1 \cdot (-2)}}{2 \cdot 4} = \frac{1 \pm 3}{8}$$

$$x = \begin{cases} \rightarrow 4/8 = \boxed{1/2} \\ \rightarrow -2/8 = \boxed{-1/4} \end{cases}$$

b) $2x^2 - 14 = 0$

$$2x^2 = 14$$

$$x^2 = 7$$

$$x = \pm \sqrt{7}$$

c) $2x^2 - 5x = 7x^2 - 5x$

$$0 = 7x^2 - 2x^2 + 5x - 5x$$

$$0 = 5x^2$$

$$x^2 = 0$$

$$\boxed{x = 0}$$

$$3) a) 2x^2 - 20x + 50 = 0$$

$$x^2 - 10x + 25 = 0$$

$$x = \frac{10 \pm \sqrt{100 - 4 \cdot 1 \cdot 25}}{2} = \frac{10 \pm \sqrt{0}}{2} = \boxed{5} \text{ (doble)}$$

$$b) x^2 - 2x - 2(x+2) = 1$$

$$x^2 - 2x - 2x - 4 = 1$$

$$x^2 - 4x - 5 = 0$$

$$x = \frac{4 \pm \sqrt{16 - 4 \cdot (-5)}}{2} = \frac{4 \pm \sqrt{36}}{2} = \begin{cases} \frac{4+6}{2} = \boxed{5} \\ \frac{4-6}{2} = \boxed{-1} \end{cases}$$

$$4) a) x^4 - 5x^2 + 4 = 0$$

$$z^2 - 5z + 4 = 0$$

$$z = \frac{5 \pm \sqrt{25 - 16}}{2} = \frac{5 \pm 3}{2}$$

$$z = \begin{cases} 4 \\ 1 \end{cases}$$

$$z = x^2$$

$$a) z = 4$$

$$4 = x^2$$

$$\boxed{x = \pm 2}$$

$$b) 1 = x^2$$

$$x = \pm \sqrt{1}$$

$$\boxed{x = \pm 1}$$

$$b) 6x^4 + 2x^2 - 8 = 0$$

$$3x^4 + x^2 - 4 = 0$$

$$3z^2 + z^2 - 4 = 0$$

$$z = \frac{-1 \pm \sqrt{1 + 48}}{6} = \frac{-1 \pm 7}{6}$$

$$z = \begin{cases} -8/6 = -4/3 \\ \frac{6}{6} = 1 \end{cases}$$

$$z = x^2$$

$$a) z = 1$$

$$1 = x^2$$

$$\boxed{x = \pm 1}$$

$$b) z = -4/3$$

$$x = \sqrt{-4/3}$$

~~no real~~

$$c) x^4 + 2x^2 - 3 = 0$$

$$z^2 + 2z - 3 = 0$$

$$z = \frac{-2 \pm \sqrt{4 + 12}}{2} = \frac{-2 \pm 4}{2}$$

$$z = \begin{cases} -3 \\ 1 \end{cases}$$

$$z = x^2$$

$$a) z = 1$$

$$x = \sqrt{1}$$

$$\boxed{x = \pm 1}$$

$$b) z = -3$$

$$x = \sqrt{-3}$$

~~no real~~

$$5) \begin{cases} 2x - 3y = 6 \\ -4x + 2y = 4 \end{cases} \xrightarrow{\cdot 2} \begin{cases} 4x - 6y = 12 \\ -4x + 2y = 4 \end{cases}$$

$$-4y = 16$$

$$\boxed{y = -4}$$

$$\text{sol } \begin{cases} x = -3 \\ y = -4 \end{cases}$$

$$2x - 3 \cdot (-4) = 6$$

$$2x + 12 = 6$$

$$2x = 6 - 12$$

$$\boxed{x = -3}$$

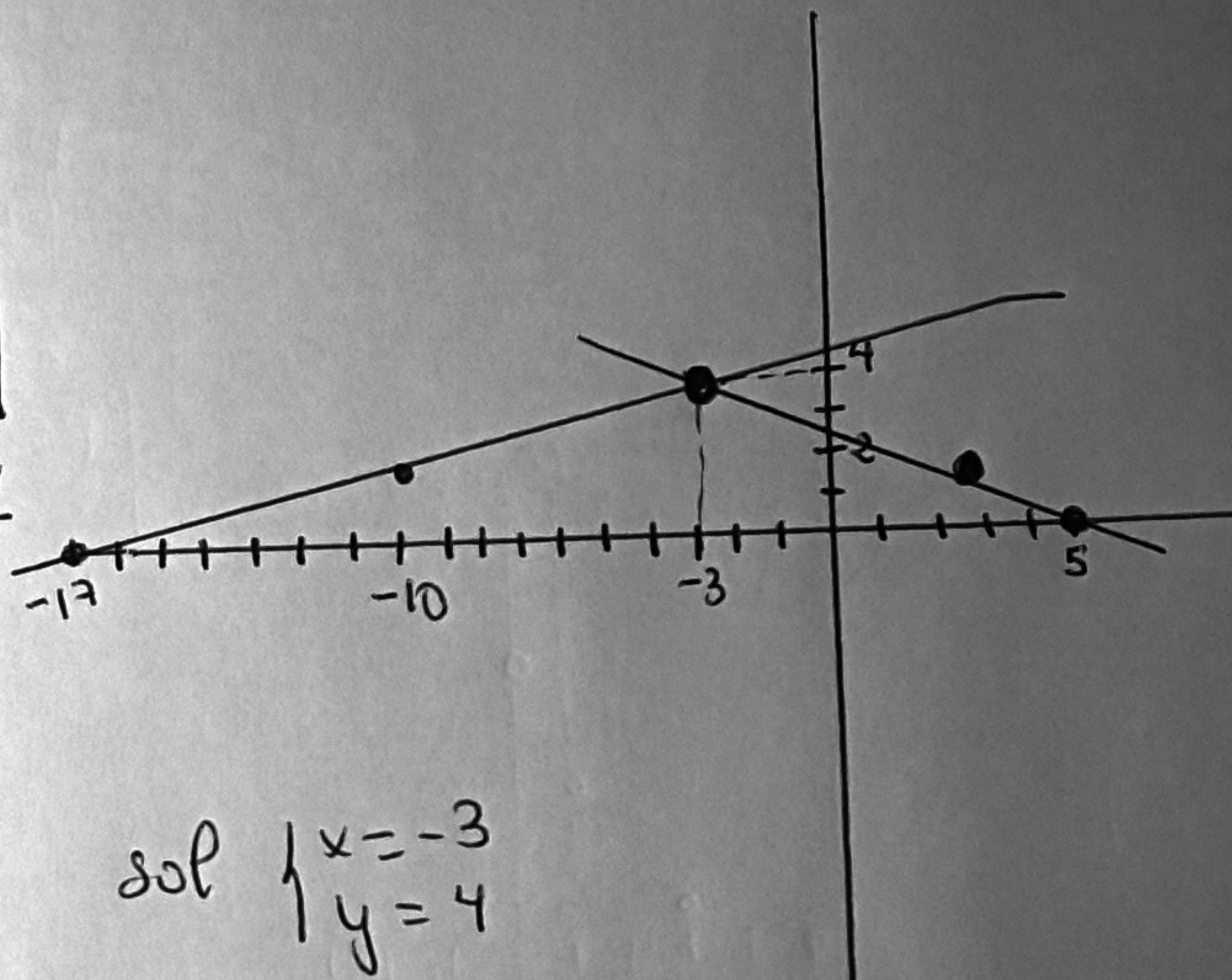
$$6) \begin{cases} x + 2y = 5 \\ -2x + 7y = 34 \end{cases} \rightarrow \boxed{y = \frac{5-x}{2}}$$

$$-2x + 7y = 34$$

$$\boxed{y = \frac{34+2x}{7}}$$

X	$y = \frac{5-x}{2}$
5	0
3	2
<u>-3</u>	<u>4</u>

X	$y = \frac{34+2x}{7}$
-10	2
<u>-3</u>	<u>4</u>
-17	0



$$\text{sol } \begin{cases} x = -3 \\ y = 4 \end{cases}$$