

p91:2

$$\left. \begin{array}{l} 2) \quad x - y = 15 \\ \quad \quad xy = 100 \end{array} \right\}$$

SUSTITUCION $\rightarrow x = 15 + y$

$\rightarrow \downarrow$

$$(15 + y) \cdot y = 100$$

$$15y + y^2 = 100$$

$$y^2 + 15y - 100 = 0$$

$$y = \frac{-15 \pm \sqrt{225 + 400}}{2} = \frac{-15 \pm 25}{2}$$

• $y_1 = 5 \rightarrow x_1 = 15 + 5 = 20$

• $y_2 = -20 \rightarrow x_2 = 15 - 20 = -5$

$$\left. \begin{array}{l} b) \quad x^2 + y^2 = 41 \\ \quad \quad x^2 + y^2 = 9 \end{array} \right\} \text{REDUCCI3N}$$

$$2x^2 = 50$$

$$x^2 = \frac{50}{2}$$

$$x^2 = 25 \rightarrow x = \pm \sqrt{25} = \pm 5$$

• $x = 5 \rightarrow 5^2 + y^2 = 41 \rightarrow y = \pm \sqrt{41 - 25} = \pm 4$

• $x = -5 \rightarrow (-5)^2 + y^2 = 41 \rightarrow y = \pm 4$

Sol: $x_1 = 5, y_1 = 4$

$x_2 = 5, y_2 = -4$

$x_3 = -5, y_3 = 4$

$x_4 = -5, y_4 = -4$

$$c) \begin{cases} x^2 + xy + y^2 = 21 \\ x + y = 1 \end{cases} \left\{ \begin{array}{l} \text{SUSTITUCIÓN} \\ \xrightarrow{\text{en } 5} \\ \rightarrow y = 1 - x \end{array} \right.$$

$$\rightarrow x^2 + x(1-x) + (1-x)^2 = 21$$

$$\cancel{x^2} + x - \cancel{x^2} + 1 + x^2 - 2x = 21$$

$$x^2 - x - 20 = 0$$

$$x = \frac{1 \pm \sqrt{1+80}}{2} = \frac{1 \pm 9}{2} \begin{matrix} 5 \\ -4 \end{matrix}$$

$$\bullet x = 5 \rightarrow y = 1 - 5 = -4$$

$$\bullet x = -4 \rightarrow y = 1 - (-4) = 5$$

$$\text{Sol: } x_1 = 5, y_1 = -4$$

$$x_2 = -4, y_2 = 5$$