

① حل كلاً من أنظمة المعادلات التالية - 8 -

a) $3x + y = 5$

$$x^2 + 3y = 7$$

b) $y = x^2 + 3x$

$$y = x - x^2 + 12$$

c) $x^2 + y^2 = 13$

$$2x^2 - 3y^2 = -19$$

② عددان هوجبان إذا كان مجموع الأول وقملي الثاني ياي (5) ، و مجموع مربعيهما ياي (10) ، فهاهما العددان .

الإجابات

①

a

$$y = 5 - 3x$$

$$x^2 + 3(5 - 3x) = 7$$

$$x^2 + 15 - 9x - 7 = 0$$

$$x^2 - 9x + 8 = 0$$

$$(x - 8)(x - 1) = 0$$

$$x - 8 = 0$$

$$x - 1 = 0$$

$$x_1 = 8$$

$$x_2 = 1$$

$$\begin{aligned} y_1 &= 5 - 3(8) \\ &= 5 - 24 \end{aligned}$$

$$\begin{aligned} y_2 &= 5 - 3(1) \\ &= 5 - 3 \end{aligned}$$

$$y_1 = -19$$

$$y_2 = 2$$

(8, -19)

,

(1, 2)

$$b \quad y = y$$

$$x^2 + 3x = x - x^2 + 12$$

$$x^2 + 3x - x + x^2 - 12 = 0$$

$$\underline{2x^2 + 2x - 12 = 0}$$

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

$$(x + 3)(x - 2) = 0$$

$$x + 3 = 0$$

$$x - 2 = 0$$

$$x_1 = -3$$

$$x_2 = 2$$

$$y_1 = (-3)^2 + 3(-3)$$

$$= 9 + -9$$

$$y_2 = (2)^2 + 3(2)$$

$$= 4 + 6$$

$$y_1 = 0$$

$$y_2 = 10$$

$$(-3, 0), (2, 10)$$

C

$$\begin{aligned} (x^2 + y^2 = 13) * 3 \\ 2x^2 - 3y^2 = -19 \end{aligned}$$

$$+ \begin{aligned} 3x^2 + 3y^2 &= 39 \\ 2x^2 - 3y^2 &= -19 \end{aligned}$$

$$\frac{5x^2}{5} = \frac{20}{5}$$

$$\sqrt{x^2} = \sqrt{4}$$

$$x = 2$$

$$x = -2$$

$$(2)^2 + y^2 = 13$$

$$(-2)^2 + y^2 = 13$$

$$4 + y^2 = 13$$

$$4 + y^2 = 13$$

$$y^2 = 13 - 4$$

$$y^2 = 13 - 4$$

$$\sqrt{y^2} = \sqrt{9}$$

$$\sqrt{y^2} = \sqrt{9}$$

$$y = 3$$

$$y = -3$$

$$y = 3$$

$$y = -3$$

$$(2, 3), (2, -3), (-2, 3), (-2, -3)$$

العدد الأول x

(2)

العدد الثاني y

$$x + 2y = 5 \quad \text{--- [1]}$$

$$x^2 + y^2 = 10 \quad \text{--- [2]}$$

$$x = 5 - 2y$$

$$(5 - 2y)^2 + y^2 = 10$$

$$25 - 20y + 4y^2 + y^2 = 10$$

$$5y^2 - 20y + 25 - 10 = 0$$

$$5y^2 - 20y + 15 = 0$$

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

$$(y - 3)(y - 1) = 0$$

$$y - 3 = 0$$

$$y - 1 = 0$$

$$y = 3$$

$$y = 1$$

$$x = 5 - 2(3)$$

$$x = 5 - 2(1)$$

$$x = 5 - 6$$

$$x = 5 - 2$$

$$x = -1 \text{ مرفوضة}$$

$$x = 3$$

العدد الأول = 3

العدد الثاني = 1