



الجزاءات المعتمدة

التمرين الأول:

أحسب :

$$A = (\sqrt{5} + 2)^2 = \sqrt{5}^2 + 2 \cdot \sqrt{5} \cdot 2 + 2^2 = 5 + 4\sqrt{5} + 4 = \boxed{9 + 4\sqrt{5}}$$

$$B = (7 + \sqrt{3})^2 =$$

$$C = (4 - \sqrt{7})^2 =$$

$$D = (\sqrt{5} - 1)^2 =$$

$$\rightarrow E = (\sqrt{13} - 3)(\sqrt{13} + 3) = \sqrt{13}^2 - 3^2 = 13 - 9 = \boxed{4}$$

$(a-b)(a+b) = a^2 - b^2$

$$F = (4 + \sqrt{11})(4 - \sqrt{11}) = 4^2 - \sqrt{11}^2 = 16 - 11 = \boxed{5}$$

$$G = (\sqrt{5} + 3)^2 + (5 - \sqrt{5})^2 =$$

$$H = (\sqrt{11} + 5)^2 - (3 - \sqrt{11})^2 =$$

التمرين الثاني:

أحسب العبارات التالية :

$$(2\sqrt{5} + 1)^2 =$$

$$(5\sqrt{2} - 6)(5\sqrt{2} + 6) =$$

$$(4 + 3\sqrt{2})(3\sqrt{2} - 4) =$$

$$(4\sqrt{3} + 5)^2 + (4\sqrt{3} - 5)^2 =$$

$$(2\sqrt{7} - 3\sqrt{3})^{15} (2\sqrt{7} + 3\sqrt{3})^{15} = (2\sqrt{7})^{15} - (3\sqrt{3})^{15} = (2^8 \cdot 7^8 - 3^8 \cdot 3^8)^{15} = \boxed{-1}$$

$$(5 - 2\sqrt{6})^{21} (5 + 2\sqrt{6})^{19} = (5 - 2\sqrt{6})^2 (5^2 - (2\sqrt{6})^2)^{19}$$

$$= (5^2 - 2 \cdot 5 \cdot 2\sqrt{6} + (2\sqrt{6})^2) (25 - 24)^{19}$$

$$= 25 - 20\sqrt{6} + 24 = \boxed{49 - 20\sqrt{6}}$$





التمرين الأول : 1 احسب ما يلي

$$A = \left(2\sqrt{3} + \frac{1}{2}\right)^2$$

$$= (2\sqrt{3})^2 + 2 \times 2\sqrt{3} \times \frac{1}{2} + \left(\frac{1}{2}\right)^2$$

$$= \frac{12 \times 4}{1 \times 4} + 2\sqrt{3} + \frac{1}{4}$$

$$= \frac{49}{4} + 2\sqrt{3}$$

$$C = (2\sqrt{5} - 2\pi)^2$$

$$= (2\sqrt{5})^2 - 2 \cdot 2\sqrt{5} \cdot 2\pi + (2\pi)^2$$

$$= 20 - 8\pi\sqrt{5} + 4\pi^2$$

$$B = \left(\frac{2}{3} - 3\sqrt{2}\right)^2 = \left(\frac{2}{3}\right)^2 - 2 \times \frac{2}{3} \times 3\sqrt{2} + (3\sqrt{2})^2$$

$$= \frac{4}{9} - 4\sqrt{2} + \frac{18 \times 2}{1 \times 2} = \frac{166}{9} - 4\sqrt{2}$$

$$D = (2\sqrt{2} + \sqrt{3})^2 - (3\sqrt{2} - \sqrt{3})^2 = (a+b)^2 - (a-b)^2$$

$$= (2\sqrt{2} + \sqrt{3})^2 - (3\sqrt{2} - \sqrt{3})^2$$

$$= (2\sqrt{2} + \sqrt{3} - 3\sqrt{2} + \sqrt{3})(2\sqrt{2} + \sqrt{3} + 3\sqrt{2} - \sqrt{3})$$

$$= (2\sqrt{2} + \sqrt{3} - 3\sqrt{2} + \sqrt{3})(5\sqrt{2})$$

$$= (-\sqrt{2} + 2\sqrt{3})(5\sqrt{2}) = -10 + 10\sqrt{3}$$

2 أنشر و اختصر العبارات التالية

$$A = \left(2x + \frac{1}{2}\right)^2$$

$$= (2x)^2 + 2 \times 2x \times \frac{1}{2} + \left(\frac{1}{2}\right)^2$$

$$= 4x^2 + 2x + \frac{1}{4}$$

$$C = (\sqrt{5}x - 2\sqrt{2})^2$$

$$= (\sqrt{5}x)^2 - 2 \cdot \sqrt{5}x \cdot 2\sqrt{2} + (2\sqrt{2})^2$$

$$= 5x^2 - 4\sqrt{10}x + 8$$

$$B = \left(\frac{2}{3} - x\sqrt{2}\right)^2$$

$$= \left(\frac{2}{3}\right)^2 - 2 \cdot \frac{2}{3} \cdot x\sqrt{2} + (x\sqrt{2})^2$$

$$= \frac{4}{9} - \frac{4}{3}\sqrt{2}x + 2x^2$$

$$D = (2\sqrt{2} + x)^2 - (3x - \sqrt{2})^2$$

$$= (2\sqrt{2})^2 + 2 \times 2\sqrt{2} \times x + x^2 - (3x)^2 - 2 \cdot 3x \cdot \sqrt{2} + (\sqrt{2})^2$$

$$= 8 + 4\sqrt{2}x + x^2 - 9x^2 + 6\sqrt{2}x - 2$$

$$= -8x^2 + 10\sqrt{2}x + 6$$

3 فك إلى جذاء عوامل العبارات التالية

$$\textcircled{a} (3x+1)^2 - (x-1)^2$$

$$= (3x+1-x+1)(3x+1+x-1)$$

$$= (2x+2)(4x+2)$$

$$\textcircled{b} 16x^2 - 8x + 1 - (4x-1)(x+2)$$

$$= (4x)^2 - 2 \times 4x \times 1 + 1^2 - (4x-1)(x+2)$$

$$= (4x-1)^2 - (4x-1)(x+2)$$

$$= (4x-1)[4x-1-x-2] = (4x-1)[4x-1-x-2] = (4x-1)(3x-3)$$

$$\textcircled{c} \frac{9x^2 - 6x + 1}{(3x-1)^2 + 9x^2 - 1}$$

$$= \frac{9x^2 - 6x + 1}{9x^2 + 6x + 1 + 9x^2 - 1}$$

$$= \frac{9x^2 - 6x + 1}{18x^2 + 6x}$$

$$= \frac{6x(3x-1)}{6x(3x+1)}$$





التمرين الثالث

لنكن العبارتين التاليتين $a = \sqrt{7} + 2\sqrt{2}$ و $b = 2\sqrt{2} - \sqrt{7}$

أ - أحسب

$$a^2 = (\sqrt{7} + 2\sqrt{2})^2 = \sqrt{7}^2 + 2 \times \sqrt{7} \times 2\sqrt{2} + (2\sqrt{2})^2 = 7 + 4\sqrt{14} + 8 = 15 + 4\sqrt{14}$$

$$b^2 = (2\sqrt{2} - \sqrt{7})^2 = (2\sqrt{2})^2 - 2 \times 2\sqrt{2} \times \sqrt{7} + \sqrt{7}^2 = 8 - 4\sqrt{14} + 7 = 15 - 4\sqrt{14}$$

$$ab = (\sqrt{7} + 2\sqrt{2})(2\sqrt{2} - \sqrt{7}) = (2\sqrt{2})^2 - (\sqrt{7})^2 = 8 - 7 = 1$$

ب - أثبت أن: $a^2 - b^2 = -8\sqrt{14}$

$$a^2 - b^2 = \frac{1}{a^2} - \frac{1}{b^2} = \frac{b^2}{(ab)^2} - \frac{a^2}{(ab)^2} = \frac{b^2 - a^2}{(ab)^2} = \frac{(15 - 4\sqrt{14}) - (15 + 4\sqrt{14})}{1} = -8\sqrt{14}$$

ج - أحسب

$$\frac{a}{b} + \frac{b}{a} = \frac{a^2}{ab} + \frac{b^2}{ab} = \frac{a^2 + b^2}{ab} = \frac{15 + 4\sqrt{14} + 15 - 4\sqrt{14}}{1} = 30$$

$$\frac{3}{a} - \frac{5}{b} = \frac{3b}{ab} - \frac{5a}{ab} = \frac{3(2\sqrt{2} - \sqrt{7}) - 5(\sqrt{7} + 2\sqrt{2})}{1} = 6\sqrt{2} - 3\sqrt{7} - 5\sqrt{7} - 10\sqrt{2} = -4\sqrt{2} - 2\sqrt{7}$$

التمرين الرابع

نعبر عن العبارتين: $a = (\sqrt{3} + \sqrt{2})^2$ و $b = (\sqrt{3} - \sqrt{2})^2$

1) بيّن أن: $a + b = 10$ و $a - b = 4\sqrt{6}$

$$a + b = (\sqrt{3} + \sqrt{2})^2 + (\sqrt{3} - \sqrt{2})^2 = (3 + 2\sqrt{6} + 2) + (3 - 2\sqrt{6} + 2) = 10$$

$$a - b = (5 + 2\sqrt{6}) - (5 - 2\sqrt{6}) = 4\sqrt{6}$$

2) بيّن أن a مقبل b و b مقبل a

$$a \times b = (5 + 2\sqrt{6})(5 - 2\sqrt{6}) = 5^2 - (2\sqrt{6})^2 = 25 - 24 = 1$$

لأن a و b متبادلتان

$$3) \text{ بيّن أن: } ba^3 - ab^3 = 40\sqrt{6}$$

$$= ab(a^2 - b^2) = ab(a - b)(a + b) = 1 \times 4\sqrt{6} \times 10 = 40\sqrt{6}$$

$$= ab(a - b)(a + b) = 10 \times 4\sqrt{6} = 40\sqrt{6}$$





التمرين الثاني:

لتكن العبارتان A و B حيث x

$$A = (3x+1)^2 - (x-2)^2 \quad \text{و} \quad B = (16x^2 - 8x + 1) - (4x-1)(x+2)$$

(1) أنشر ثم اختصر العبارة A

$$\begin{aligned} A &= (9x^2 + 6x + 1) - (x^2 - 4x + 4) \\ &= 9x^2 + 6x + 1 - x^2 + 4x - 4 \\ \Rightarrow A &= 8x^2 + 10x - 3 \end{aligned}$$

(2) أحسب العبارة A إذا علمت أن $x = \sqrt{2}$

$$\begin{aligned} A &= 8(\sqrt{2})^2 + 10\sqrt{2} - 3 \\ &= 16 + 10\sqrt{2} - 3 \\ &= 13 + 10\sqrt{2} \end{aligned}$$

(3) أكتب A و B على شكل جداء عوامل

$$\begin{aligned} B &= (4x)^2 - 2 \times 4x \times 1 + 1^2 - (4x-1)(x+2) \\ &= (4x-1)^2 - (4x-1)(x+2) \\ &= (4x-1)[4x-1 - (x+2)] \\ &= (4x-1)(3x-3) \\ &= (4x-1)(3x-3) \end{aligned}$$

$$\begin{aligned} A &= (3x+1)^2 - (x-2)^2 = (a+b)(a-b) \\ &= (3x+1 - (x-2))(3x+1 + (x-2)) \\ A &= (2x+3)(4x-1) \end{aligned}$$

(4) أوجد x إذا علمت أن $A - B = 0$

$$\begin{aligned} A - B &= 0 \Rightarrow (2x+3)(4x-1) - (4x-1)(3x-3) = 0 \\ (4x-1)[(2x+3) - (3x-3)] &= 0 \\ (4x-1)(-x+6) &= 0 \\ 4x-1 &= 0 \quad \text{أو} \quad -x+6 = 0 \\ x &= \frac{1}{4} \quad \text{أو} \quad x = 6 \end{aligned}$$





$$\begin{aligned} 1) (a+b)^2 &= a^2 + 2ab + b^2 \\ 2) (a-b)^2 &= a^2 - 2ab + b^2 \\ 3) a^2 - b^2 &= (a-b)(a+b) \end{aligned}$$

التمرين الثالث:
لنكن العبارة
 $A = (x-1)^2 - 4$

1. أحسب A في حالة $x=0$

$$A = (0-1)^2 - 4 = (-1)^2 - 4 = 1 - 4 = -3$$

2. بين أن
 $A = (x+1)(x-3)$
 $A = (x-1)^2 - 4 = (x-1-2)(x-1+2) = (x-3)(x+1)$

ب. جد الأعداد الحقيقية x بحيث $(x-1)^2 - 4 = 0$ يعني $(x-3)(x+1) = 0$

يعني $(x-3)(x+1) = 0$
يعني $x-3=0$ أو $x+1=0$
يعني $x=3$ أو $x=-1$

3. نعتبر العبارة $B = A - x^2 + 3$

أ. بين أن $B = -2x$

$$\begin{aligned} B &= (x+1)(x-3) - x^2 + 3 = (x^2 - 2x - 3) - x^2 + 3 \\ &= x^2 - 2x - 3 - x^2 + 3 = -2x \end{aligned}$$

ب. أحسب إذن $b = 1111 \times 1107 - 1110^2 + 3$

$$\begin{aligned} &= B(1110) \\ &= -2 \times 1110 \\ &= -2220 \end{aligned}$$





$$1) \rightarrow (a+b)^2 = a^2 + 2ab + b^2$$

$$2) \rightarrow (a-b)^2 = a^2 - 2ab + b^2$$

(1) فكك الى جداء عوامل.

$$a = x^2 - 6x + 9 + (6 - 2x)(x - 7)$$

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

$$= (x-3)(x-3) - 2(x-3)(x-7)$$

$$= (x-3) [x-3 - 2(x-7)] = (x-3)(x-3-2x+14)$$

$$= (x-3)(-x+11)$$

$$b = x^2 - x + \frac{1}{4} + (1-2x)(3x-5)$$

$$= \left(x - \frac{1}{2}\right)^2 + (1-2x)(3x-5)$$

$$= \left(x - \frac{1}{2}\right) \times \left(x - \frac{1}{2}\right) + 2\left(\frac{1}{2} - x\right)(3x-5)$$

$$= \left(x - \frac{1}{2}\right) \left(x - \frac{1}{2}\right) - 2\left(x - \frac{1}{2}\right)(3x-5) = \left(x - \frac{1}{2}\right) \left[x - \frac{1}{2} - 2(3x-5)\right]$$

$$= \left(x - \frac{1}{2}\right) \left(x - \frac{1}{2} - 6x + 10\right) = \left(x - \frac{1}{2}\right) \left(-5x + \frac{19}{2}\right)$$

$$c = (3-2x)^2 - 9(3x+1)^2$$

$$= (3-2x)^2 - (3(3x+1))^2 = (3-2x)^2 - (9x+3)^2$$

$$= (3-2x-9x-3)(3-2x+9x+3)$$

$$= (-11x)(7x+6)$$

$$d = x^2 + 2\sqrt{2}x + 2 + (\sqrt{8}x + 4)(x - 2\sqrt{2})$$

$$= (x + \sqrt{2})^2 + 2\sqrt{2}(x + \sqrt{2})(x - 2\sqrt{2})$$

$$= (x + \sqrt{2})(x + \sqrt{2}) + 2\sqrt{2}(x + \sqrt{2})(x - 2\sqrt{2})$$

$$= (x + \sqrt{2}) \left[x + \sqrt{2} + 2\sqrt{2}(x - 2\sqrt{2}) \right]$$

$$= (x + \sqrt{2}) \times (x + \sqrt{2} + 2\sqrt{2}x - 8)$$

$$= (x + \sqrt{2}) \times (2\sqrt{2}x + \sqrt{2} - 8)$$





$$\begin{aligned}
 e &= \frac{1}{9}x^2 + \frac{1}{6}x + \frac{1}{16} + (4x+3)(5x-2) \\
 &= \left(\frac{1}{3}x + \frac{1}{4}\right)^2 + (4x+3)(5x-2) \\
 &= \left(\frac{1}{3}x + \frac{1}{4}\right)\left(\frac{1}{3}x + \frac{1}{4}\right) + (4x+3)(5x-2) \\
 &= \left(\frac{1}{3}x + \frac{1}{4}\right)\left(\frac{1}{3}x + \frac{1}{4}\right) + 12\left(\frac{1}{3}x + \frac{1}{4}\right)(5x-2) \\
 &= \left(\frac{1}{3}x + \frac{1}{4}\right)\left[\frac{1}{3}x + \frac{1}{4} + 12(5x-2)\right] \\
 &= \left(\frac{1}{3}x + \frac{1}{4}\right)\left[\frac{1}{3}x + \frac{1}{4} + 60x - 24\right]
 \end{aligned}$$

$$\begin{aligned}
 f &= (5x-1)^2 - (3x+6)^2 + (2x-7)(x+8) \\
 &= (5x-1-3x-6)(5x-1+3x+6) + (2x-7)(x+8) \\
 &= (2x-7)(8x+5) + (2x-7)(x+8) \\
 &= (2x-7)(8x+5+x+8) \\
 &= (2x-7)(9x+13)
 \end{aligned}$$

$$\begin{aligned}
 g &= 4(3x-1)^2 - 25(x-1)^2 \\
 &= (2(3x-1))^2 - (5(x-1))^2 = (6x-2)(5x-5)(6x-2+5x-5) \\
 &= (6x-2-5x+5)(11x-7) \\
 &= (x+3)(11x-7)
 \end{aligned}$$

$$\begin{aligned}
 h &= 4x^2 - 16x + 16 + (x-2)(3x+1) \\
 &= (2x-4)^2 + (x-2)(3x+1) \\
 &= (2(x-2))^2 + (x-2)(3x+1) \\
 &= 4(x-2)^2 + (x-2)(3x+1) = (x-2)(4(x-2) + 3x+1) \\
 &= (x-2)(4x-8+3x+1) = (x-2)(7x-7) = 7(x-2)(x-1)
 \end{aligned}$$





التمرين الأول:

نعتبر العبارتين $E = 2x^2 + 6\sqrt{2}x + 5$ و $F = (\sqrt{2}x - 3)(\sqrt{2}x + 1)$ حيث x عدد حقيقي .

(1) أ) احسب E إذا علمت ان $x = -\sqrt{2}$.

$$E = 2(-\sqrt{2})^2 + 6\sqrt{2}(-\sqrt{2}) + 5 = 4 - 12 + 5 = 9 - 12 = -3$$

(ب) احسب F إذا علمت ان $x = 1$.

$$F = (\sqrt{2} - 3)(\sqrt{2} + 1) = \sqrt{2}^2 + \sqrt{2} - 3\sqrt{2} - 3 = 2 - 2\sqrt{2} - 3 = -1 - 2\sqrt{2}$$

(2) أ) بين ان : $E = (\sqrt{2}x + 3)^2 - 4$.

$$\begin{aligned} (\sqrt{2}x + 3)^2 - 4 &= (\sqrt{2}x)^2 + 2\sqrt{2}x \times 3 + 3^2 - 4 \\ &= 2x^2 + 6\sqrt{2}x + 9 - 4 \\ &= E \end{aligned}$$

(ب) استنتج تفكيكا للعبارة E .

$$\begin{aligned} E &= (\sqrt{2}x + 3)^2 - 2^2 = (\sqrt{2}x + 3 - 2)(\sqrt{2}x + 3 + 2) \\ &\rightarrow = (\sqrt{2}x + 1)(\sqrt{2}x + 5) \end{aligned}$$

(3) بين ان $E + F = 2(\sqrt{2}x + 1)^2$.

$$\begin{aligned} E + F &= (\sqrt{2}x + 1)(\sqrt{2}x + 5) + (\sqrt{2}x - 3)(\sqrt{2}x + 1) \\ &= (\sqrt{2}x + 1)[\sqrt{2}x + 5 + \sqrt{2}x - 3] = (\sqrt{2}x + 1)(2\sqrt{2}x + 2) \\ &= 2(\sqrt{2}x + 1)(\sqrt{2}x + 1) = 2(\sqrt{2}x + 1)^2 \end{aligned}$$

(4) أ) أوجد العدد الحقيقي x الذي يحقق $2x^2 + 6\sqrt{2}x + 5 = (3 + \sqrt{2}x)(\sqrt{2}x + 1)$.

$$(\sqrt{2}x + 1)(\sqrt{2}x + 5) - (3 + \sqrt{2}x)(\sqrt{2}x + 1) = 0 \quad \text{يعني}$$

$$(\sqrt{2}x + 1)(\sqrt{2}x + 5 - 3 - \sqrt{2}x) = 0 \quad \text{يعني}$$

$$\sqrt{2}x + 1 = 0 \quad \text{يعني} \quad (\sqrt{2}x + 1)/2 = 0 \quad \text{يعني} \quad \sqrt{2}x + 1 = 0 \quad \text{يعني} \quad x = -\frac{1}{\sqrt{2}}$$

(ب) أوجد العدد الحقيقي x الذي يحقق $\sqrt{E + F} = 2\sqrt{2}$.

$$\sqrt{2(\sqrt{2}x + 1)^2} = 2\sqrt{2} \quad \text{يعني} \quad \sqrt{2}(\sqrt{2}x + 1) = 2\sqrt{2}$$

$$\sqrt{2}(\sqrt{2}x + 1) = 2\sqrt{2} \quad \text{يعني} \quad \sqrt{2}x + 1 = 2$$

$$\sqrt{2}x + 1 = 2 \quad \text{ف} \quad \sqrt{2}x = 1$$

$$\sqrt{2}x = 1 \quad \text{ف} \quad x = \frac{1}{\sqrt{2}}$$

$$x = -\frac{3}{\sqrt{2}}$$

$$x = \frac{1}{\sqrt{2}}$$

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التمرين الثاني :

نعتبر العبارات التالية: $A = (2x - 1)^2 - (x + 3)^2$ و $B = 4x^2 - 13x - 12$ و $C = x^2 - 8x + 16$ حيث x عدد حقيقي .

(1) انشر ثم اختصر العبارة A .

$$\begin{aligned} A &= (4x^2 - 4x + 1) - (x^2 + 6x + 9) \\ &= 4x^2 - 4x + 1 - x^2 - 6x - 9 = 3x^2 - 10x - 8 \end{aligned}$$

(ب) احسب القيمة العددية للعبارة A في حالة $x = 0$

$$A = 3 \times 0^2 - 10 \times 0 - 8 = -8$$

(2) بين أن $B = (4x + 3)(x - 4)$

$$\begin{aligned} (4x + 3)(x - 4) &= 4x^2 - 16x + 3x - 12 \\ &= 4x^2 - 13x - 12 \end{aligned}$$

(3) ا) فكك A و C إلى جذاء عوامل .

$$\begin{aligned} C &= x^2 - 8x + 16 \\ &= x^2 - 2 \times x \times 4 + 4^2 \\ &= (x - 4)^2 \end{aligned}$$

$$\begin{aligned} A &= (2x - 1 - x - 3)(2x - 1 + x + 3) \\ &= (x - 4)(3x + 2) \end{aligned}$$

(ب) بين أن $A + B + C = (x - 4)(8x + 1)$

$$\begin{aligned} A + B + C &= (x - 4)(3x + 2) + (4x + 3)(x - 4) + (x - 4)^2 \\ &= (x - 4)[3x + 2 + 4x + 3 + x - 4] \\ &= (x - 4)(8x + 1) \end{aligned}$$

(ج) بين أنه إذا كان A و $B + C$ متقابلان فإن $x = 4$ أو $x = -\frac{1}{8}$

A و $B + C$ متقابلان يعني $A + (B + C) = 0$

$$(x - 4)(8x + 1) = 0$$

$$x - 4 = 0 \text{ أو } 8x + 1 = 0$$

$$x - 4 = 0 \text{ يعني } x = 4 \text{ و } 8x + 1 = 0 \text{ يعني } x = -\frac{1}{8}$$





التمرين الثالث :

نعتبر العبارتين التاليتين: $A = -3x^2 - x + 2$ و $B = 7 + 6x - x^2$ حيث x عدد حقيقي .

(1) بين أن $A = (2 - 3x)(x + 1)$

$$\begin{aligned} (2 - 3x)(x + 1) &= 2x + 2 - 3x^2 - 3x \\ &= -3x^2 - x + 2 = A \end{aligned}$$

(2) أ) بين أن $B = 16 - (3 - x)^2$

$$\begin{aligned} 16 - (3 - x)^2 &= 16 - (9 - 6x + x^2) \\ &= 16 - 9 + 6x - x^2 = 7 + 6x - x^2 \\ &= B \end{aligned}$$

ب) استنتج تفكيكا إلى جزاء عوامل للعبارة B

$$\begin{aligned} B &= 4^2 - (3 - x)^2 \\ &= (4 - 3 + x)(4 + 3 - x) = (1 + x)(7 - x) \end{aligned}$$

(3) أ) بين أن $A + B = (x + 1)(9 - 4x)$

$$\begin{aligned} A + B &= (2 - 3x)(x + 1) + (1 + x)(7 - x) \\ &= (x + 1)[2 - 3x + 7 - x] = (x + 1)(-4x + 9) \end{aligned}$$

ب) أوجد العدد الحقيقي x إذا كان A و B متقابلان .

$$A + B = 0 \Rightarrow (x + 1)(-4x + 9) = 0$$

$$-4x + 9 = 0 \Rightarrow x = \frac{9}{4}$$

$$x + 1 = 0 \Rightarrow x = -1$$

$$x = -1$$

$$x = \frac{9}{4}$$

(4) أ) احسب القيمة العددية لكل من العبارتين A و B في حالة $x = \sqrt{2}$

$$\begin{aligned} B &= 7 + 6\sqrt{2} - (\sqrt{2})^2 \\ &= 7 + 6\sqrt{2} - 2 \\ &= 5 + 6\sqrt{2} \end{aligned}$$

$$\begin{aligned} A &= -3(\sqrt{2})^2 - \sqrt{2} + 2 \\ &= -6 - \sqrt{2} + 2 \\ &= -4 - \sqrt{2} \end{aligned}$$



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