

الف) $x^2 - 5x - 6 = 0 \Rightarrow x^2 - 5x - 6 = 0 = (x-6)(x+1) = 0 \Rightarrow x = 6, x = -1$

لنا حلتين

ب) $3x^2 - 11x + 2 = 0 \rightarrow \frac{x^2 - 11x + 2}{a+c=b} = 0 \Rightarrow x = \frac{-(-11) \pm \sqrt{(-11)^2 - 4 \cdot 3 \cdot 2}}{2 \cdot 3} = \frac{11 \pm \sqrt{121 - 24}}{6} = \frac{11 \pm \sqrt{97}}{6}$

ج) $4x^2 - 4x - 12 = 0 \rightarrow x^2 - x - 3 = 0 \Rightarrow (x-4)(x+1) = 0 \Rightarrow x = 4, x = -1$

د) $2x^2 - 5x - 12 = 0 \rightarrow x^2 - 5x - 12 = 0 = (x-8)(x+3) = 0 \Rightarrow x = 8, x = -3$

الف) $x^2 - 5x - 12 = 0 \rightarrow (x-8)(x+3) = 0 \Rightarrow x = 8, x = -3$

ب) $x^2 + 2x + 3 = 0 \Delta \rightarrow \frac{-2 \pm \sqrt{4 - 12}}{2} = \frac{-2 \pm \sqrt{-8}}{2} = \frac{-2 \pm 2\sqrt{-2}}{2} = -1 \pm \sqrt{-2}$

ج) $2x^2 + 5x + 3 = 0 \Delta \rightarrow \frac{-5 \pm \sqrt{25 - 24}}{4} = \frac{-5 \pm 1}{4} = \frac{-4}{4} = -1, \frac{-6}{4} = -\frac{3}{2}$

د) $3x^2 + 13x - 2 = 0 \rightarrow x^2 + 13x - 6 = 0 \rightarrow x = \frac{-13 \pm \sqrt{169 + 24}}{2} = \frac{-13 \pm \sqrt{193}}{2}$

$A = \{1, 2, 3\}, B = \{2, 3\} \quad A \times B = \{(1, 2), (1, 3), (2, 2), (2, 3), (3, 2), (3, 3)\}, B^2 = \{(2, 2), (2, 3), (3, 2), (3, 3)\}$

$A \times B - B^2 = \{(1, 2), (1, 3)\}$

$f(x) = \{(3, m), (2, 1), (-2, m), (x, m), (3, m+2), (m, 4)\} \quad m^2 - m - 2 = 0 \Rightarrow m = -1, 2 \rightarrow \text{عقود} \Rightarrow m = -1$

$g(x) = \{(3, m), (2, 1), (m, 4), (2, m+2), (-2, m), (-1, 3)\} \quad m^2 - m - 2 = 0 \Rightarrow m = -1, 2 \rightarrow \text{عقود} \Rightarrow m = 2$

$f(x) = \{(1, a), (1, a-2), (a, a+2)\} \quad a^2 - 2a + 2 = 0 \Rightarrow a = 1, 2 \quad \text{if } a=1 \rightarrow (a, a+2) = (1, 3) \rightarrow \text{عقود} \Rightarrow a = 2$

$f(x) = \begin{cases} x-1 & x \leq 1 \\ ax+b & 1 < x < 2 \\ x & x \geq 2 \end{cases} \rightarrow x=1 \Rightarrow \frac{1-1}{\text{معر}} = a+b \Rightarrow a=1, b=-1 \Rightarrow ab = -1$

$f(x) = \begin{cases} 2x-3 & x \geq k \\ 4-2x & x < k \end{cases} \quad x=k \Rightarrow 2k-3 = 4-2k \Rightarrow 4k=7 \Rightarrow k = \frac{7}{4}$

الف) $y^2 - 2y = x^2 - 4x + 3 \xrightarrow{\text{تعويض}} \text{نقطة تقاطع} \quad y^2 - 2y = x^2 - 4x + 3 \xrightarrow{\text{تعويض}} |y| = \sqrt{1 - \cos x} \xrightarrow{x=\frac{\pi}{2}} |y| = \sqrt{1} = 1$

ب) $|x| + |y| = 3 \xrightarrow{x=0} |y| = 3 \Rightarrow y = \pm 3 \xrightarrow{\text{تعويض}} |y| = 1 \Rightarrow y = \pm 1$

ج) $y^2 + 2x + 1 = 0 \Rightarrow y^2 + (x+1) = 0 \rightarrow \text{نقطة تقاطع} \rightarrow \text{نقطة تقاطع}$

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$$\Rightarrow \begin{cases} y_1 - y_2 = 0 \Rightarrow y_1 = y_2 \\ y_1 y_2 = 0 \end{cases}$$

$$\Delta \langle \sigma \rangle \sim \frac{1}{\sqrt{N}} \sim \frac{1}{\sqrt{10^6}} \sim 10^{-3}$$

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$$\Rightarrow (x-y) = 0 \xrightarrow{\text{D.V.}} x-y=0$$

$$= x = y$$