

الف) $4x^2 - 8x - 9 = 0 \rightarrow x^2 - 2x - \frac{9}{4} = 0$
 $\rightarrow (x-4)(x+1) = 0 \rightarrow x = \begin{cases} \frac{9}{4} = \boxed{\frac{9}{4}} \\ -\frac{1}{4} = \boxed{-\frac{1}{4}} \end{cases}$

ب) $3x^2 - 12x - 9 = 0 \rightarrow x^2 - 4x - 3 = 0$
 $\rightarrow (x-4)(x+1) = 0 \rightarrow x = \begin{cases} \frac{9}{2} = \boxed{3} \\ -\frac{1}{2} = \boxed{-\frac{1}{2}} \end{cases}$

ج) $5x^2 - 10x - 12 = 0 \rightarrow x^2 - 2x - \frac{12}{5} = 0$
 $\rightarrow (x-4)(x+1) \rightarrow x = \begin{cases} \frac{4}{5} = \boxed{\frac{4}{5}} \\ -\frac{12}{5} = \boxed{-\frac{12}{5}} \end{cases}$

د) $2x^2 - 8x - 12 = 0 \rightarrow x^2 - 4x - 6 = 0$
 $\rightarrow (x-6)(x+1) = 0 \rightarrow x = \begin{cases} \frac{1}{2} = \boxed{\frac{1}{2}} \\ -\frac{3}{2} = \boxed{-\frac{3}{2}} \end{cases}$

الف) $x^2 - 2x - 12 = 0 \rightarrow (x-4)(x+1) = 0$
 $\rightarrow x = \begin{cases} \sqrt{13} \\ -2 \end{cases}$

ب) $2x^2 + 8x + 6 = 0 \rightarrow x^2 + 4x + 3 = 0$
 $\rightarrow (x+2)(x+1) = 0 \rightarrow x = \begin{cases} -\frac{1}{2} = \boxed{-\frac{1}{2}} \\ -\frac{3}{2} = \boxed{-\frac{3}{2}} \end{cases}$

ج) $x^2 + 2x + 5 = 0 \rightarrow \Delta = b^2 - 4ac$
 $\rightarrow \Delta = 4 - 20 \rightarrow \Delta < 0 \rightarrow \text{فاصله دارد}$

د) $5x^2 + 4x - 3 = 0 \rightarrow x = \frac{-b \pm \sqrt{b^2 - 4ac}}{2a}$
 $x = \frac{-4 \pm \sqrt{16 + 60}}{10} \rightarrow x_1 = \frac{-4 + \sqrt{76}}{10}, x_2 = \frac{-4 - \sqrt{76}}{10}$

$A, B = \{(1,2)(1,4)(2,2)(2,4)(4,2)(4,4)\}$
 $B^T = \{(2,2)(2,4)(4,2)(4,4)\}$
 $A, B - B^T = \{(1,2), (1,4)\}$

الف) $m^2 = m+2 \rightarrow m^2 - m - 2 = 0 \rightarrow (m-2)(m+1) = 0 \rightarrow m = \begin{cases} -1 \\ 2 \end{cases}$
 $\rightarrow \text{if } m=2 \rightarrow \varepsilon = 1 \times \infty \text{ / if } m=-1 \rightarrow \boxed{m=-1}$

ب) $m^2 = m+2 \rightarrow m^2 - m - 2 = 0 \rightarrow (m-2)(m+1) = 0 \rightarrow m = \begin{cases} -1 \\ 2 \end{cases}$
 $\rightarrow \text{if } m=-1 \rightarrow \varepsilon = \infty \times \infty \text{ / if } m=2 \rightarrow 1 = \infty \times \infty \rightarrow \boxed{m=2}$

$a^2 = 4a - 2 \rightarrow a^2 - 4a + 2 = 0 \rightarrow (a-1)(a-2) = 0 \rightarrow a = \begin{cases} 1 \\ 2 \end{cases}$
 $\text{if } a=1 \rightarrow 4a+2 = a^2 \rightarrow 6 = 1 \times \infty$
 $\text{if } a=2 \rightarrow a^2 = 4a-2 \rightarrow \varepsilon = 4-2 = \varepsilon \rightarrow \boxed{a=2}$

$$\left. \begin{aligned} n=1 &\rightarrow n^2-1 = a+b \rightarrow 1-1 = a+b = 0 \\ n=2 &\rightarrow a+b = n^2 \rightarrow 2a+b = 1 \end{aligned} \right\} \rightarrow \begin{cases} a+b=0 \\ 2a+b=1 \end{cases} \rightarrow \underline{a=1}$$

$$\rightarrow a+b=0 \rightarrow 1+b=0 \rightarrow \underline{b=-1}$$

$$\rightarrow a \times b = 1 \times (-1) = \boxed{-1} \quad \left(\frac{1}{2} \right)$$

$$n=K \rightarrow 2K-C = \varepsilon - CK \rightarrow \delta K = V \rightarrow \boxed{K = \frac{V}{\delta}} \quad \left(\frac{1}{2} \right)$$

الف) $y^2 - 4y = x^2 - \varepsilon x + C$
 $(2,1) \rightarrow n=1 \rightarrow y^2 - 4y = y(y-4)$
 $\rightarrow y = \{0, 4\}$ نامعتبر

ب) $|x| + |y| = C \rightarrow C - |x| = |y|$

$\rightarrow n=0 \rightarrow C = |y| \rightarrow y = \pm C$

$\rightarrow$ نامعتبر

2) $|y| = \sqrt{1 - \cos x} \rightarrow n = \frac{\pi}{2}$

1) $y^2 + n^2 + 2n+1 = 0 \rightarrow y^2 + (n+1)^2 = 0$

$\rightarrow$ نامعتبر $\rightarrow (-1, 0) \rightarrow$ نامعتبر

الف) $\sqrt{y} + n^2 = 2n - 2 \rightarrow \sqrt{y} = -n^2 + 2n - 2$

$\left. \begin{aligned} f(x_1, y_1) \in f \\ f(x_2, y_2) \in f \end{aligned} \right\} \xrightarrow{it m = n} \sqrt{y_1} = \sqrt{y_2} \xrightarrow{cos} \boxed{y_1 = y_2} \quad \left(\frac{1}{2} \right)$

ب) $y^2 - y = 2n \rightarrow \left. \begin{aligned} f(x_1, y_1) \in f \\ f(x_2, y_2) \in f \end{aligned} \right\} \xrightarrow{it m = n} y_1^2 - y_1 = y_2^2 - y_2$

$\rightarrow y_1^2 - y_1 - y_2^2 + y_2 = 0 \rightarrow (y_1 - y_2)(y_1 + y_2 + y_1 y_2) + 1(y_1 - y_2) = (y_1 - y_2)(y_1^2 + y_1 + y_2^2 + y_2 + 1) = 0$

$\rightarrow \boxed{y_1 = y_2} \quad \checkmark$

$y_1^2 + y_2^2 + y_1 y_2 + 1 = 0 \rightarrow \Delta = y_1^2 - \varepsilon y_1 - 1 = -\varepsilon y_1 - 1$

$\rightarrow -\varepsilon y_1 - 1 < 0 \rightarrow \Delta < 0 \rightarrow$ نامعتبر

الف) $n - 2 \sin y = y^2 \sin n \rightarrow n = 0$

$\rightarrow 0 - 2 \sin y = y^2 \sin 0 \rightarrow$ نامعتبر

$\rightarrow$ نامعتبر

ب) $\sqrt{\frac{n}{y}} + \sqrt{\frac{y}{n}} = 2 \xrightarrow{2 \sin}$

$\frac{n}{y} + \frac{y}{n} + 2(1) = \varepsilon \rightarrow \frac{n}{y} + \frac{y}{n} = \varepsilon - 2$

$\rightarrow 2ny = n^2 + y^2 \rightarrow n^2 + y^2 - 2ny = (n - y)^2 = 0$

$\rightarrow n = y \rightarrow$ نامعتبر