

الف) $4x^2 - 9x - 9 = 0 \rightarrow x^2 - 9x - 9 = 0 \rightarrow (x-9)(x+1)$ (1)

$x \rightarrow \frac{9}{4} = \frac{9}{4}$ ✓
 $x \rightarrow \frac{-9}{4} = -\frac{9}{4}$

$9 \leftarrow -1$ ✓

ب) $13x^2 - 11x - 9 = 0 \rightarrow x^2 - 11x - 9 = 0 \rightarrow \Delta = 44 - 4(1)(-9) = 100$

$x = \frac{11 \pm \sqrt{100}}{2} \rightarrow 9 \rightarrow \frac{9}{13} = \frac{9}{13}$ ✓
 $x \rightarrow -1 \rightarrow \frac{-1}{13} = -\frac{1}{13}$

ج) $4x^2 - 4x - 12 = 0 \rightarrow x^2 - 4x - 12 = 0 \rightarrow (x-6)(x+2)$

$x \rightarrow \frac{4}{4} = 1$ ✓
 $x \rightarrow \frac{-4}{4} = -1$

$6 \leftarrow -2$ ✓

د) $12x^2 - 9x - 12 = 0 \rightarrow x^2 - 9x - 12 = 0 \rightarrow (x-12)(x+1) = 0$

$x = \frac{12}{1} = 12$

$x = -\frac{12}{1} = -12$

یادت نده مضرب ۵ تقسیم کن!

$12 \leftarrow -1$ ✓

ه) $x^2 - 9x - 12 = 0 \rightarrow (x-12)(x+1) = x^2 - 11x - 12 = 0$ (2)

و) $12x^2 + 9x + 12 = 0 \rightarrow x^2 + 9x + 12 = 0 \rightarrow (x+3)(x+4)$

$\frac{-9}{2} = -\frac{9}{2}$ ✓

$-3 \leftarrow -4$ ✓

$$s) 10x^4 + 10x - 1 = 0 \quad 9 - 10(10)(-1) = 119$$

$$1^b - 1 = a + b \rightarrow a + b = 0 \rightarrow x = 1^b \rightarrow x a + b = \varepsilon \quad (6)$$

$$a + b = 0$$

$$\left. \begin{aligned} x a + b = 1 \\ a + b = -1 \end{aligned} \right\} \rightarrow a \times b = -1 \rightarrow a \times b = 1 \mid -1 = -1 \quad (7)$$

$$1^b k - 1^b = \varepsilon - 1^b k \rightarrow a k = 1 \rightarrow k = \frac{1}{a} \quad (8)$$

$$1, \sqrt{3}$$

$$y^k y = x^k - x + 1^k \rightarrow x = 1 \rightarrow y^k y = 0 \rightarrow y(y^k y) = 0 \quad (8)$$

الف

$$x^k y = \pm \sqrt{y} \quad x$$

$$\rightarrow |x| + |y| = 1^k \rightarrow x = 0 \rightarrow |y| = 1^k \rightarrow y = \pm 1^k \quad \text{Causality } X$$

$$c) |y| = \sqrt{1 - \cos x} \rightarrow x = 0 \rightarrow |y| = 1 \rightarrow y = \pm 1 \quad \text{Causality } X$$

$$s) y^k + x^k + 1^k + 1 = 0 \rightarrow x = 0 \rightarrow y^k = -1 \quad \text{Causality } \checkmark$$

$$1 = -1 \mid -1 = -1$$

$$\sqrt[p]{y} + x^p = p x - p \quad \sqrt[p]{y_1} + x^p = p x - p \quad (9)$$

$$\sqrt[p]{y} + x^p = p x - p \rightarrow \sqrt[p]{y_1} = \sqrt[p]{y_p} \rightarrow y_1 = y_p \quad \text{مساوي}$$

$$y^p + p y = \Delta x \rightarrow y_1^p + p y_1 - \Delta x = y_p^p + p y_p - \Delta x$$

$$y_1^p = y_p^p \quad \text{مساوي} \quad \left\{ \begin{array}{l} y_1^p - y_p^p + p(y_1 - y_p) = 0 \rightarrow y_1 = y_p \\ (y_1 - y_p)(y_1^{p-1} + y_1^{p-2}y_p + \dots + y_p^{p-1} + p) = 0 \end{array} \right. \quad (y_1 = y_p)$$

$$\text{وإ)} \quad x=0 \rightarrow 0 \times \sin y = \sin 0 \times y \rightarrow 0=0 \quad \text{مساوي} \quad (10)$$

$$\rightarrow \sqrt{\frac{x}{y}} + \sqrt{\frac{y}{x}} = p \rightarrow \frac{x}{y} + \frac{y}{x} = \varepsilon$$

$$\frac{x^p + y^p}{xy} = \varepsilon \rightarrow y^p + x^p = \varepsilon xy \quad \text{مساوي}$$

$$(p) \text{ } \frac{1}{z} \rightarrow z = \sqrt{\frac{x}{y}} \rightarrow \frac{1}{z} = \sqrt{\frac{y}{x}} \rightarrow (z + \frac{1}{z} = p) \times z$$

$$z^p - p z + 1 = 0 \rightarrow (z-1)^p = 0 \rightarrow z=1 \rightarrow \sqrt{\frac{x}{y}} = 1 \rightarrow x=y$$

! لا تنسى ان $y \neq 0$ $\frac{1}{y}$

مساوي

$$7-1) \quad x_n^2 - 2n - 12 = 0$$

$$x^2 - 2n - 12 = 0 \rightarrow (n-1)(n+3) = 0 \quad \nearrow \quad x_1 = \frac{1}{2} = 2$$

$$\searrow \quad x_2 = -\frac{3}{2}$$

$$8-2) \quad y^2 + x^2 + 2n+1 = 0 \quad \leadsto \quad y^2 + (x+1)^2 = 0$$

چمود مقدار نامتنی صفر است پس هر دو صفر هستند یعنی باید $x = -1$ و $y = 0$ را در معادله جایگزین کنیم تا بررسی کنیم!