

الف) $x^2 - 4x + 8 = 0 \xrightarrow{+4} x^2 - 4x + 16 = 16 \rightarrow (x-4)^2 = 16 \rightarrow x-4 = \pm 4$
 $\Rightarrow x = 8$ (Diagram: A circle with radius 4, center at (4,0), passing through (8,0).)

ب) $x^2 + 8x + 17 = 0 \xrightarrow{+9} x^2 + 8x + 16 = -1 \rightarrow (x+4)^2 = -1 \rightarrow x+4 = \pm i$
 $\Rightarrow x = -4 \pm i$ (Diagram: A circle with radius 1, center at (-4,0), passing through (-4,1) and (-4,-1).)

الف) $x^2 - 5x + 4 = 0 \rightarrow (x-3)(x-2) \rightarrow x = 3, 2$ (Diagram: A circle with radius 2.5, center at (2.5,0), passing through (2,0) and (3,0).)

ب) $x^2 - 5x - 14 = 0 \rightarrow (x-7)(x+2) \rightarrow x = 7, -2$ (Diagram: A circle with radius 4.5, center at (2.5,0), passing through (-2,0) and (7,0).)

الف) $x^2 - 3x - 5 = 0 \rightarrow \frac{3 \pm \sqrt{9+20}}{2} = \frac{3 \pm \sqrt{29}}{2}$ (Diagram: A circle with radius $\frac{\sqrt{29}}{2}$, center at (1.5,0).)

ب) $4x^2 - 4x + \frac{1}{4} = 0 \rightarrow \frac{4 \pm \sqrt{16-1}}{8} = \frac{4 \pm \sqrt{15}}{8}$ (Diagram: A circle with radius $\frac{\sqrt{15}}{8}$, center at (0.5,0).)

الف) $x^2 - 3x + 2 = 0 \rightarrow 1 + 2 - 3 = 0$ (Diagram: A circle with radius 1, center at (1.5,0), passing through (1,0) and (2,0).)

ب) $4x^2 + x - 3 = 0 \rightarrow -\frac{c}{a} = -\frac{-3}{4} = \frac{3}{4}$ (Diagram: A circle with radius 1.5, center at (-0.25,0), passing through (-1.5,0) and (1,0).)

الف) $x^2 - 12x + 35 = 0 \rightarrow x^2 - 12x + 36 = -1 \rightarrow (x-6)^2 = -1 \rightarrow x-6 = \pm i$
 $\Rightarrow x = 6 \pm i$ (Diagram: A circle with radius 1, center at (6,0), passing through (6,1) and (6,-1).)

ب) $3x^2 - 10x + 11 = 0 \rightarrow x^2 - 10x + 11 = 0 \rightarrow (x-5)^2 = -4 \rightarrow x-5 = \pm 2i$
 $\Rightarrow x = 5 \pm 2i$ (Diagram: A circle with radius 2, center at (5,0), passing through (5,2) and (5,-2).)

الف) $-x^2 + 4x - 1 = 0 \rightarrow \Delta = 4^2 - 4(-1)(-1) = 16 - 4 = 12 \Rightarrow \Delta > 0 \Rightarrow$ جذرين حقيقيين

ج) $y_{\text{min}} - x_1 + y_2 = 0 \rightarrow \Delta = (-1)^2 - f(x)(y) = 1 - 14 = -13 \Rightarrow \Delta < 0$ ریشه ندارد

درای ۲ ریاضه مساوی یا ۱ ریاضه مختلف دارد $\Delta = 0$

c) $2n^2 - n + 120 \rightarrow \Delta = (-1) - 4(1)(120) = -1 - 480 = -481 \Rightarrow$ موجب

$$Y u' - V u + a = 0$$

الف) $\Delta > 0 \Rightarrow f'(x) - f'(a)(x) > 0 \rightarrow 9 - 12a > 0 \rightarrow 9 > 12a \rightarrow \frac{9}{12} > a$

$$\rightarrow \Delta = 0 \Rightarrow (-r) - f(a)(r) = 0 \rightarrow q - \lambda a = 0 \rightarrow q = \lambda a \xrightarrow{\text{circle}} \frac{q}{\lambda} = a$$

$$c) \Delta < 0 \Rightarrow (-r)^2 + 4(a)(r) < 0 \rightarrow 9 - 4a < 0 \rightarrow 9 < 4a \rightarrow \frac{9}{4} < a$$

$$c) \Delta \geq 0 \Rightarrow (-r)^2 - f(a)(r) \geq 0 \rightarrow 9 - 12a \geq 0 \rightarrow 9 \geq 12a \rightarrow \left(\frac{1}{2} \geq a\right)$$

(الف)

$$y = x^2 + 4x + 4$$

عرفه (مصدراً)

Min $\left| \begin{aligned} -\frac{b}{r_a} &= -\frac{y}{v} = -r \\ y &= \underbrace{\frac{f(r)}{q}}_r + \underbrace{2f(r-v)}_{-10} + \Delta = -r \end{aligned} \right.$

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$$\frac{\sqrt{\Delta}}{2|a|} = \frac{\sqrt{(4)^2 - 4(1)(-1)}}{2(1)} = \frac{\sqrt{14}}{2} = \frac{r}{2} = r$$

الف

$$y = -x^2 + 12x - 13$$

$$\frac{\sqrt{5}}{2191} \cdot \frac{\sqrt{(5)^2 - (-1)(-3)}}{2|-1|} = \frac{\sqrt{2}}{2}$$
 عرف المبدأ

$$\rightarrow \frac{y}{y} = 1$$

$$\text{Max } y = -\underbrace{(r)^2}_{\text{f}} + \underbrace{c(r)}_{\text{g}} - r - 1$$

U, 10b) ① $y=0 \Rightarrow 0 = -n + t_n - 1 \rightarrow 0 = n - 1$

$$\longrightarrow (n-1)(n-r) = 0 \rightsquigarrow n \leq r$$

$y = 0 \Rightarrow (1, 0) \text{ و } (3, 0)$
 چون در این محور y است
 نقطه دو نقطه
 سبب $y = 1$
 چون در این محور y است
 نقطه دو نقطه

$$S = \alpha + \beta = -\frac{b}{a} \rightarrow -\frac{-1}{1} = 1$$

$$P = \alpha \times \beta = \frac{c}{a} \rightarrow \frac{-r}{1} = \textcircled{1}$$

الف) $S^2 - 2\rho = (3)^2 - 2(1-2) \Rightarrow 9 + 2 = 11$

$$b) S'' - rSp = (r)' - r(r)(-r) \Rightarrow 2V + 1A = 46$$