

الف)  $y = 3x^2 - 2x + 0 \rightarrow x = \frac{-b}{2a} = \frac{+2}{6} = \frac{1}{3}$   $y = -\frac{b^2 + 4ac}{4a} = -\frac{4 + 0}{12} = -\frac{1}{3}$  الزاد خواصه

ب)  $y = -x^2 + 4x + 0 \rightarrow x = \frac{-4}{-2} = +2$   $y = \frac{-16}{-4} = +4$  1 زاویه 30°  
منه گذرد

الف)  $y = 2x^2 - 4x + 2 \rightarrow x = \frac{+4}{4} = 1$   $y = -\frac{4}{2} = -2$  زاویه 45° و 2 زاویه 45°

ب)  $-x^2 + 4x - 1 \rightarrow x = \frac{-4}{-2} = +2$   $y = \frac{-16}{-4} = +4$  زاویه 30°

الف)  $\frac{a+B}{a-B} = \frac{+1 + \sqrt{13}}{\sqrt{13} - 1} = \frac{\sqrt{13}}{13}$  و  $a^2 + B^2 = 5^2 - 2P = 1^2 - 2(-3) = 1 + 6 = 7$   $\sqrt{13} < a - B = \frac{\sqrt{13}}{1}$   $S = -\frac{b}{a} = 1$   $P = \frac{c}{a} = -3$

ب)  $a^2 + B^2 = 5^2 - 2SP \rightarrow 1^2 - 2(1 \cdot -3) = 1 + 6 = 7$

ج)  $a^3 - B^3 = (a-B)(a^2 + aB + B^2) = 4\sqrt{13}$

4- از آنجایی که فقط یک ریشه داشته اونم  $x=2$  بود پس برانتر دوم  $(x^2 - 4x + 4)$  داره که معنی است در بیشتر موارد.

$\Rightarrow 7a^2 - 4(1)(a) = a^2 - 4a \rightarrow a(a-4) \rightarrow \frac{0}{+} \frac{4}{-}$  I V II  
(0, 4)

$\Delta = 0 \quad (x-2)^2 = x^2 - 4x + 4 \quad a = 2$

$3x^2 - 12x - 9 = 0$

$\alpha + B = \frac{12}{3} = 4 \rightarrow B = 4 - \alpha \rightarrow 2\alpha^2 + (4 - \alpha)^2 - 4\alpha = 7$

د)  $2\alpha^2 + 16 - 8\alpha + \alpha^2 - 4\alpha = 7 \Rightarrow 3\alpha^2 - 12\alpha + 9 = 0 \xrightarrow{\div 3} \alpha^2 - 4\alpha + 3 = 0 \rightarrow (a-1)(a-3) = 0$

$\alpha = 1$  یا  $\alpha = 3$  به ریشه بریز

$\alpha \times B = 3 \Rightarrow P = \frac{c}{a} = \frac{-9}{3} \Rightarrow \alpha B = \frac{-9}{3} \Rightarrow 3 = \frac{-9}{3} \Rightarrow \boxed{-9 = a}$

$\frac{+9}{3} = -3$

$1 - 2a > 0$  طبیعی  $2a < 1 \Rightarrow a < \frac{1}{2}$

$a - 2$  طبیعی  $\sim a > 2 \Rightarrow a = 3 \rightarrow A = \begin{Bmatrix} 3 \\ 1 \end{Bmatrix}, B = \{1\}$

$x_5 = \frac{A+B}{2} = \frac{1}{2} = 5 \rightarrow b = 5 \rightarrow s = \begin{Bmatrix} 5 \\ 3 \end{Bmatrix} \rightarrow y = a(x-5)^2 + 3$

$A \text{ معنی } \Rightarrow 1 = a(a-5)^2 + 3 \rightarrow a = -\frac{1}{a}$

$x=0 \rightarrow y = -\frac{1}{a} (-5)^2 + 3 = -\frac{1}{a} \rightarrow |-\frac{1}{a}| \text{ زاویه خواسته بین } + \frac{1}{a}$

$\alpha + B = 1, P = \frac{-b}{2a} = 5 \Rightarrow B = 1 - \alpha$

$4(1-\alpha)^2 + 2\alpha^2 - 20(1-\alpha) = 17 \rightarrow 4\alpha^2 - 8\alpha + 4 + 2\alpha^2 - 20 + 20\alpha = 17$

$6\alpha^2 - 8\alpha + 4 + 20\alpha - 20 = 17 \rightarrow 6\alpha^2 - 4\alpha + 3 = 0 \xrightarrow{\div 2} 3\alpha^2 - 2\alpha + \frac{3}{2} = 0 \rightarrow \Delta = 1 - 4(3)(\frac{3}{2}) = \frac{1}{4} \rightarrow (\alpha_1, \alpha_2) = \frac{\sqrt{\Delta}}{a} = \frac{\sqrt{\frac{1}{4}}}{3} = \frac{\frac{1}{2}}{3} = \frac{1}{6} = \frac{1}{\sqrt{3}}$

۱ - چون نقاط داده برابر دارند، معادله درجه دوم مستقیم

$$a = \frac{1(-5)}{1} = -5$$

$$y = -\frac{1}{2}x + \frac{1}{2} \quad \text{رکبند } (-\frac{1}{2}, \frac{1}{2})$$

۵

نقطه [۴]  $\Rightarrow \frac{1}{2} = a(0+2)^2 - \frac{1}{2} \rightarrow \frac{1}{2} = 4a - \frac{1}{2} \rightarrow 4a = 1 - (-\frac{1}{2}) = \frac{1}{2}$

$$(19B) \Rightarrow B = \frac{1}{2}(1+2)^2 - \frac{1}{2} \rightarrow \frac{1}{2} \times 9 - \frac{1}{2} = \frac{9}{2} - \frac{1}{2} = 4 \quad \boxed{B=4}$$

$$3\alpha^2 + 2\beta^2 \rightarrow \alpha^2 + 2\alpha^2 + 2\beta^2 \rightarrow \alpha^2 + 2(\alpha^2 + \beta^2) \xrightarrow{s=2p} \alpha^2 + 2(s^2 - 2p)$$

$$\begin{aligned} -q \\ s = -6 \\ p = a \end{aligned}$$

$$\text{با } \alpha = \frac{-6 \pm \sqrt{36 - 4a}}{2} \rightarrow \alpha = \frac{-6 - 2\sqrt{9-a}}{2} \rightarrow \alpha = -3 - \sqrt{9-a}, \beta = -3 + \sqrt{9-a}$$

۵

$$9 + (9-a) + 6\sqrt{9-a} + 2\left(\frac{36-4a}{4}\right) = 12\sqrt{2} + 18$$

$$9 - a + 6\sqrt{9-a} = 12\sqrt{2} + 18 \Rightarrow \underbrace{9-a}_{\text{مربع}} + \underbrace{6\sqrt{9-a}}_{\text{دو برابر}} = \underbrace{12\sqrt{2}}_{\text{دو برابر}} \Rightarrow \boxed{a=1}$$

پس  $a=1$  است

$$\frac{1}{\sqrt{\alpha}} + \frac{1}{\sqrt{\beta}} = 5 \rightarrow \frac{\sqrt{\alpha} + \sqrt{\beta}}{\sqrt{\alpha\beta}} = 5 \rightarrow \sqrt{\alpha} + \sqrt{\beta} = 5\sqrt{\alpha\beta}$$

۵ - ۱۰

$$\rightarrow 5 + 2\sqrt{p} = 2\Delta p \rightarrow 5 + 2\sqrt{\frac{1}{29}} = \frac{2\Delta}{29} \rightarrow 5 = \frac{2\Delta}{29} - \frac{1}{29} = \frac{13}{29}$$

$$\frac{m+13}{29} = \frac{13}{29} \rightarrow m=1$$

$$m\alpha^2 + 2\alpha + 2 = -\frac{1}{2} + 2\alpha + 2 \rightarrow p = \frac{1}{4} = -\frac{1}{2}$$