شناسایی اول طاهر

۱۸٫۷۵

Subject: .... Year: .... Month: .... Day:

پور ابراهیم

① $y=-x^2+bx+3$ رأس $y = \frac{-\Delta}{4a} = 7 \rightarrow \frac{-(b^2-4ac)}{-4} = \frac{b^2+12}{4} = 7$ ۱٫۷۵

$b^2+12=28 \quad b^2=16 \quad b=\pm 4$

② الف) $x^2=t$ ، $t^2-2t+3=0 \rightsquigarrow \Delta=b^2-4ac$ ، $\Delta = 4-4(3\times 1) = -8<0$ ریشه ندارد

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ب) $4-x^2=t \quad t^2-2t-15=0 \quad (t+3)(t-5)=0$

$t=-3 \rightarrow 4-x^2=-3 \rightsquigarrow x^2=7 \rightsquigarrow x=\pm\sqrt{7} \quad t=-3, 5$

$t=5 \rightarrow 4-x^2=5 \rightsquigarrow x^2 \neq -1$

③

$\alpha+\beta = \frac{-b}{a} \rightarrow \frac{16}{4}=4$

$\cancel{2}\alpha - \beta = -4$

$\begin{cases} \alpha+\beta=4 \\ \alpha = 2+\beta \end{cases}$

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$4x^2-16x+12=0$
$\Delta>0$

$4(1)^2-16(1)+m=0$

$\cancel{4-16}+m=0 \quad -12$

$\boxed{m=12}$

$-\beta = 2-4+\beta$

$-2\beta=-2 \quad \boxed{\beta=1}$

$\alpha+\beta=4$

$\alpha = 4-1 \Rightarrow \boxed{\alpha=3}$

④ $2\alpha-\beta=4 \quad P=\alpha\cdot\beta = \frac{c}{a} = \frac{m-1}{3}=0 \rightarrow m-1=0 \quad \boxed{m=1}$

$\beta=-4+2\alpha \quad \alpha+\beta = \frac{-b}{a} = \frac{6}{3}=2 \quad \alpha+2\alpha-4=2$

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$3x^2-6x=0 \quad \Delta>0$

$3\alpha=6 \quad \boxed{\alpha=2} \quad \alpha+\beta=2 \quad \boxed{\beta=0}$

⑤ معکوس $\rightarrow$ ضرب ریشه‌ها $=1 \rightarrow \frac{c}{a}=1 \rightarrow \frac{m^2-2}{-m}=1$ همچنین

$m^2-2=-m \quad m^2+m-2=0 \xrightarrow{\text{حالت خاص}} x=1, -2$ شرط $\Delta>0$

$m=-2 \rightarrow 2x^2+4x+2=0 \rightsquigarrow \Delta = 16-4(4)=0$

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$m=1 \rightarrow -x^2+4x-1=0 \longrightarrow \Delta = 16-4(1)>0$ ص

(6)

$\alpha \cdot \beta^2 = 4 \qquad \overbrace{\alpha \cdot \beta}^{3} \cdot \beta = 4 \qquad$ ضرب ریشه ها $= \frac{c}{a} = 3$

$3\beta = 4 \quad \beta = \frac{4}{3} \qquad \alpha \cdot \beta = 3 \rightsquigarrow \alpha = \frac{3}{\frac{4}{3}} = \frac{9}{4}$

1,75

جمع ریشه ها $= m \rightsquigarrow \frac{9}{4} + \frac{4}{3} = \frac{43}{12}$

$x^2 - \frac{43x}{12} + 3 \rightarrow \Delta > 0$ ✓

(7)

$S = \alpha + \beta = \alpha + 3\alpha = 4 \qquad \boxed{\beta = 3\alpha}$

1,75

$4\alpha = 4 \quad \boxed{\alpha = 1} \qquad P = \frac{c}{a}$

$\beta = 3(1) = 3 \qquad \boxed{P = m = 3}$

$P = 3 \times 1 \qquad \boxed{m = 3}$

$x^2 - 4x + 3 \rightarrow \Delta > 0$ ✓

(8)

$\alpha^3 + \frac{8}{\alpha^3} = \underbrace{\overbrace{\left(\alpha + \frac{2}{\alpha}\right)}^{7}}\left(\alpha^2 - 2 + \frac{4}{\alpha^2} - 6 + 6\right)$

$\underbrace{\underbrace{\left(\alpha + \frac{2}{\alpha}\right)}_{7}{}^2}_{49} - 6 = 43$

$\frac{\alpha^2 + 2}{\alpha} = \frac{7\alpha}{\alpha} = 7$

2

$\alpha^2 - 7\alpha + 2 = 0$

$\alpha^2 + 2 = 7\alpha \qquad \alpha^2 = 7\alpha - 2 \qquad 43 \times 7 = 301$

(9)

$-10t^2 + 50t = 0 \qquad t(-10t + 50) = 0$

$t = 0 \quad \text{یا}$

$-10t + 50 = 0 \rightsquigarrow -10t = -50 \quad \boxed{t = 5}$

$-10t + 50 = 0$

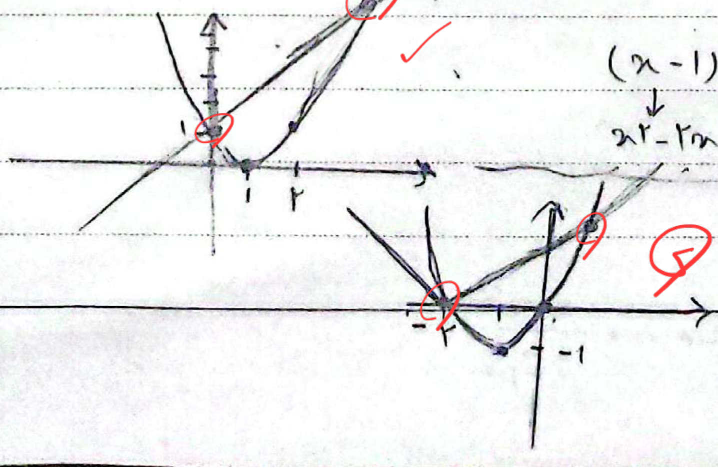
2

$y = \frac{-\Delta}{4a} = \frac{-(b^2 - 4ac)}{-40} = 62{,}5 \qquad (50)^2$

(10)

$x = 0 \rightsquigarrow y = 1$

$x = 2 \rightsquigarrow y = 5$



✓

$(x-1)^2 = 2x + 1$

$x^2 - 2x + 1 \rightsquigarrow \begin{array}{c|c|c} x & 0 & 2 \\ y & 1 & \end{array}$

$x^2 + 2x = |x + 2|$

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ریشه ها $x = 0, -2$

$x(2 + x) = 0 \qquad \frac{-b}{2a} = -1$

$x = 0, -2$

$y = -1$