

نام و نام خانوادگی: غزل عباسی

کلاس: ۱۴

موضوع: ریاضیات

۱۷۱۵

$$y = -x^2 + bx + 2 \quad \frac{-(b^2 + 12)}{-4} = v \Rightarrow \frac{b^2 + 12}{4} = v \quad b^2 = 12 \quad b = \pm 2\sqrt{3}$$

$$\frac{-\Delta}{4a} = v$$

الف) $f(x) = x^2 + 2x + 2$ $x^2 = t$ $t^2 + 2t + 2 = 0$ $t = -1 \pm i$ $x = \pm \sqrt{-1 \pm i}$

ب) $f(x) = (x - x^2)^2 - 2(x - x^2) - 10 \Rightarrow x^2 - 2x - 10 = 0 \quad x = 5, -3$

$x - x^2 = 0 \Rightarrow x^2 = -2$ $x - x^2 = -2 \Rightarrow x^2 = 2 \quad x = \pm \sqrt{2}$

$\alpha = \beta + 2 \quad S = \beta + 2 + \beta = 2\beta + 2 = 4 \Rightarrow \beta = 1 \Rightarrow \alpha = 3$

$\alpha \cdot \beta = \frac{m}{4} \Rightarrow 3 = \frac{m}{4} \quad m = 12$

$x^2 - 14x + 12 = 0 \quad \Delta > 0 \checkmark$

$2\alpha - 4 = \beta \quad S = 2\alpha - 4 + \alpha = 3\alpha - 4 = 2 \Rightarrow \alpha = 2 \quad \rho = \frac{m-1}{4} = \alpha \cdot \beta$

$\beta = 1 \quad m \Rightarrow \frac{m-1}{4} = 2 \Rightarrow m = 9$

$\alpha + \beta = 2 \quad \alpha = 2 \quad \beta = 0$

$2\alpha - \beta = 4 \quad \beta = 0$

$m-1 = 0 \quad m = 1 \quad 3\alpha - 4 = 2 \quad \Delta > 0 \checkmark$

$\alpha = \frac{1}{\beta} \quad \rho = \frac{1}{\beta} \cdot \beta = 1 = \frac{m^2 - 2}{-m} \Rightarrow m^2 - 2 = -m \Rightarrow m^2 + m - 2 = 0 \Rightarrow m = -2, 1$

$m = -2 \Rightarrow -2x^2 + 4x + 2 = 0 \quad \Delta < 0 \quad m = 1 \Rightarrow \Delta > 0 \checkmark$

$\alpha = \frac{4}{\beta^2} \quad S = \frac{4}{\beta^2} + \beta \quad \rho = \frac{4}{\beta} \quad \frac{4}{\beta} = 2 \Rightarrow \beta = \frac{4}{2} \quad \alpha = \frac{4}{4} = 1$

$S = m = \alpha + \beta = 1 + \frac{4}{1} = 5 \quad \frac{4^2}{1^2} = \frac{16}{1} \quad 2x^2 - \frac{4^2}{1^2} + 2 = 0 \quad \Delta > 0 \checkmark$

$\alpha = 2\beta \quad S = 2\beta + \beta = 3\beta = 4 \Rightarrow \beta = \frac{4}{3} \quad \alpha = \frac{8}{3} \quad \rho = m = \alpha \cdot \beta = \frac{32}{9}$

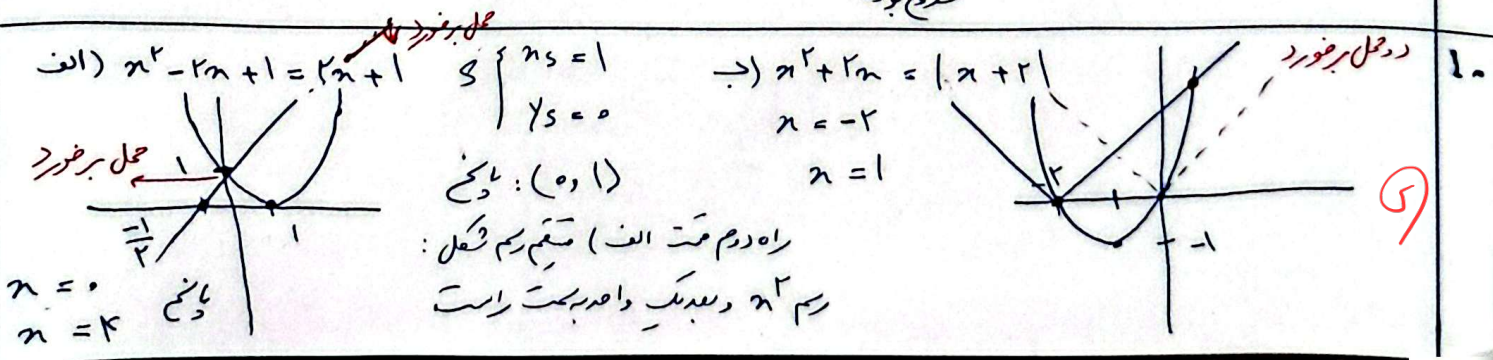
$2x^2 - 4x + 2 = 0 \quad \Delta > 0 \checkmark$

$\rho = \alpha \cdot \beta = 2 \quad S = \alpha + \beta = 5 \Rightarrow \beta = \frac{2}{\alpha}$

$\alpha^2 + \frac{1}{\alpha^2} = \alpha^2 + \left(\frac{2}{\alpha}\right)^2 = \alpha^2 + \beta^2 = (\alpha + \beta)^2 - 2(\alpha \cdot \beta) = 5^2 - 2(2) = 25 - 4 = 21$

$h(t) = -10t^2 + 50t \quad \text{Max } h = \frac{-\Delta}{4a} = \frac{-(50 \cdot 50)}{-40} = \frac{2500}{4} = 625$

$h = 0 \Rightarrow 50t - 10t^2 = 0 \Rightarrow t^2 - 5t = 0 \Rightarrow t = 0 \quad t = 5$



الف)

$$2^r - r n + 1 = r n + 1$$

$$2^r - r n \leq 0 \quad n(n - r) \leq 0$$

$$n \leq 0 \quad , \quad n \leq r$$

$$\Rightarrow 2^r + r n \leq |n + r|$$

: جواب

$$1 - / 2^r + r n \leq n + r \Rightarrow 2^r + n - r \leq 0$$

$$r - / 2^r + r n \leq -n - r \Rightarrow 2^r + r n + r \leq 0$$

$$n \leq -r \quad n \leq -1 \quad n = -1$$