مهرشاد جابرزاده — تکلیف شماره ۱۹ — یازدهم ریاضی B

۱- $\alpha = 3\beta \Rightarrow \alpha \times \beta = 3\beta \times \beta = 3\beta^2 = \frac{4}{3} \Rightarrow 9\beta^2 = 4 \Rightarrow \beta = \pm\frac{2}{3}$

$if\ \beta = \frac{2}{3} \Rightarrow \beta + 3\beta = \frac{8}{3} \Rightarrow \alpha = 8$

$8 - (-8) = 16$

$if\ \beta = -\frac{2}{3} \Rightarrow \beta + 3\beta = -\frac{8}{3} \Rightarrow \alpha = -8$

۲- $x = \alpha, \beta \rightarrow \sqrt{\frac{1}{\alpha}} + \sqrt{\frac{1}{\beta}} = 5 \Rightarrow 25 = \frac{1}{\alpha} + 2\sqrt{\frac{1}{\alpha\beta}} + \frac{1}{\beta}$

$\frac{1}{36} = \alpha\beta$

$25 = \frac{1}{\alpha} + \frac{1}{\beta} + 2 \times 6$

$13 = \frac{1}{\alpha} + \frac{1}{\beta} \Rightarrow \frac{\alpha+\beta}{\alpha\beta} = 13 \Rightarrow \frac{\alpha+\beta}{\frac{1}{36}} = 13 \Rightarrow \frac{13}{36} = \alpha + \beta \Rightarrow$

$m + 14 = 13$

$m = -1$

$-x^2 + 2x + 2 \Rightarrow \alpha \times \beta = \frac{2}{-1} = -2$

۳- $4x^3 + kx^2 + 9x - 2 = 0 \Rightarrow m(x-\alpha)^2 \times (x-\beta) \rightarrow (x^2 - 2\alpha x + \alpha^2) \times (x-\beta) \Rightarrow$

$4(x^3 + \alpha^2 x - 2\alpha x^2 - \beta x^2 - \beta\alpha^2 - 2\alpha\beta x) \Rightarrow -4\alpha^2 = -\frac{2}{4} \Rightarrow \beta\alpha^2 = \frac{1}{2}$

$\frac{\beta\alpha^2}{\alpha\beta} = \alpha = \frac{\frac{1}{2}}{-\frac{1}{2}} \Rightarrow \alpha = -\frac{1}{2} \Rightarrow k = -(2\alpha+\beta) \times 4 = -\frac{5}{4} \times 4 = -5$

۴- $\alpha + \beta = -6,\ \alpha\beta = \alpha$

$\beta = -6 - \alpha \rightarrow \beta^3 = -(216 + 108\alpha + 18\alpha^2 + \alpha^3) + 3\alpha^2 = 5\alpha^2 + \sqrt{3} + 24\alpha = 12\sqrt{3} + 18$ [illegible]

$5\alpha^2 + 24\alpha = 12\sqrt{3} + 13 \Rightarrow \alpha = \frac{-24 \pm \sqrt{\ [illegible]\ }}{10} \Rightarrow \alpha_1 = \frac{-9 + 10\sqrt{3}}{5}$

$5\alpha^2 + 24\alpha - 12\sqrt{3} - 13 = 0 \Rightarrow$

$-\frac{2}{5} - \sqrt{3} = \alpha_2$

قابل قبول: α_1

خیلی خوب

۸-

$(2x+1)(2x+2) = 4x^2+6x+2 = a$

$2x+2 = a+1$

$4x+4 = 4x^2+6x+2+1$

$2x(2x+1) = 0 \Rightarrow 0 = 4x^2+2x$

$x_1 = 0, x_2 = -\frac{1}{2}$ غق ق

$x_1 = 0 x_2 = 3$

$x_1 x_2 = 3 \rightarrow a = 2$

$(3m)(3m+3) = b$

$3m+3 = 15 \Rightarrow m = 2 \rightarrow x_1 x_2 = 6 \cdot x_2 = 6$

$6 \times 12 = 72 = b$

$|b-a| = |72-2| = 70 \leftarrow$

۹-

$\alpha+\beta = -1 , \alpha\beta = -1-m^2$

$\alpha^2+\beta^2 = (\alpha+\beta)^2 - 2\alpha\beta = 1-2(-1-m^2) = 1+2+m^2$

کمترین مقدار ← $m=0 \leftarrow$ (3)

۱۰-

$ax^2+bx+c=0$

$25a-5b+c = 9a+3b+c$

$16a-8b=0$

$2a-b=0$

$2a=b$

$b^2=4a^2$

$b^2-4ac = \frac{4a^2-4ac}{-4a} = 1$

$4a^2-4ac = -4a$

$a-c = -1$

$c = a+1$

$a\beta^2 + 2a\beta + a + 1 = 0$; دلیل سوال ۵

$a\alpha^2 + 2a\alpha + a + 1 = 0$

$\beta + \alpha = -\frac{b}{a} = \frac{-(a+1)}{a}$, $\alpha\beta = \frac{1+a}{a} \Rightarrow \alpha^2\beta^2 (\beta+\alpha)^2 - 2\alpha\beta$ ۵

$1 - 2\left(\frac{a+1}{a}\right) = 0 \Rightarrow \frac{a+1}{a} = -\frac{1}{2}$

$2a + 2 = -a \Rightarrow 2a = -3a \Rightarrow c = -\frac{2}{3}$ عوض از صبا

$c = \frac{1}{3}$