نام و نام خانوادگی ...جبین صابری...... ۱۹/۵ پاسخنامه تشریحی تکلیف شماره ۲...۲ کلاس ...دهم تجربی ۲.........

۱

$y = a(x-h)^2 + k$

$y = a(x+1)^2 + 9 = a(x^2 + 2x + 1) + 9 = ax^2 + 2ax + a + 9 =$

$f(3) \to 9a + 6a + a + 9 = 1$

$16a + 9 = 1$

$\Rightarrow 16a = -8$

$\Rightarrow a = -\frac{1}{2}$

$-\frac{1}{2}x^2 - x + 8\frac{1}{2} = -\frac{1}{2}x^2 - x + \frac{17}{2}$

۲

۲

$2x^2 + mx + m + 6 = 0 \quad \Delta > 0 - S > 0 - P > 0$

$\Delta > 0 \to b^2 - 4ac > 0 \to m^2 - 8(m+6) > 0 \to m^2 - 8m - 48 > 0$

x		-4		12	
y	$+$	0	$-$	0	$+$

$x > 12 -$

$x < -4$

$-6 \quad -4 \quad 0 \quad 12$

$(m - 12)(m + 4)$

۲

$S > 0 \to -\frac{b}{a} > 0 \to -\frac{m}{2} > 0 \to -m > 0 \Rightarrow m < 0 \quad P > 0 \to \frac{c}{a} > 0 \to \frac{m+6}{2} > 0 \Rightarrow m + 6 > 0$

$\Rightarrow m > -6$

$-6 < m < -4$

۳

$3x^2 + (2m-1)x + 2 - m = 0 \quad 3x^2 - 2m + 1 + 2 - m = 0$

$3x^2 - 3m + 3 = 0$ ✗

$P = \frac{c}{a} = \frac{2-m}{3} =$

$S = -\frac{b}{a} = -\frac{2m-1}{3} = \frac{3}{2-m} \to -4m + 2m^2 + 2 - m = 9$

$2m^2 - 4m + 2 - m = 9$

$2m^2 - 5m + 2 = 9$

$2m^2 - 5m - 7 = 0 \to m^2 - 5m - 14 = 0$

$(m - 7)(m + 2) = 0$

$3{,}5 = \frac{7}{2} \quad -1$ ✗

۲

۴

$x^2 - x - 4 = 0 \quad S = 1 \quad P = -4 \quad P_{جدید} = (x_1^3 + \frac{1}{x_2})(x_2^3 + \frac{1}{x_1})$

$= x_1^3 x_2^3 + \frac{1}{x_1 x_2} + x_1^2 + x_2^2 = -64 + 9 - \frac{1}{4}$

$= -\frac{221}{4}$

$x_1^3 + \frac{1}{x_2} \;,\; x_2^3 + \frac{1}{x_1}$

$S_{جدید} = x_1^3 + x_2^3 + \frac{1}{x_1} + \frac{1}{x_2} = (S^3 - 3SP) + \frac{x_1 + x_2}{x_1 \cdot x_2}$

$\Rightarrow S_{جدید} = (1 - 3 \times 1 \times -4) + \frac{1}{-4} = 13 - \frac{1}{4} = \frac{51}{4}$

$S_{جدید} = \frac{51}{4} \;,\; P_{جدید} = -\frac{221}{4}$

$x^2 - Sx + P = 0 \Rightarrow x^2 - \frac{51}{4}x - \frac{221}{4} = 0$

$\xrightarrow{\times 4} 4x^2 - 51x - 221 = 0$

۲

۵

$t = \sqrt[3]{x} \quad (\sqrt[3]{x^2} + \frac{1}{\sqrt[3]{x^2}} + 1)(\sqrt[3]{x^2} - 1) = 2\sqrt[3]{x}$

$(t^2 + \frac{1}{t^2} + 1)(t^2 - 1) = 2t$

$t^2 + \frac{1}{t^2} + 1 = \frac{t^4 + t^2 + 1}{t^2} \quad \frac{(t^4 + t^2 + 1)(t^2 - 1)}{t^2} = 2t \quad \frac{t^6 - 1}{t^2} = 2t$

$2t^3 = t^6 - 1$

$t^6 - 2t^3 - 1 = 0 \quad t^3 = K \quad K^2 - 2K - 1 = 0 \quad K = 1 \pm \sqrt{2} = t^3 = x \Rightarrow x = 1 \pm \sqrt{2}$

$\to$ جمع $= 2$

۲

$3x^2 - ax + 4 = 0 \quad \alpha - 3\alpha$

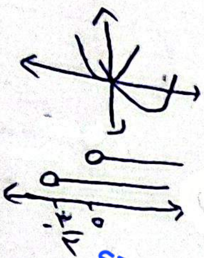
$P = \alpha \cdot 3\alpha = 3\alpha^2 = \frac{c}{a} = \frac{4}{3} \Rightarrow \alpha^2 = \frac{4}{9} \Rightarrow \alpha = \pm\frac{2}{3}$

$S = -\frac{b}{a} = \alpha + 3\alpha = 4\alpha \to \frac{a}{3} \to 4 \times \frac{2}{3} = \frac{a}{3} \to \frac{1}{3} \Rightarrow a = 8$

$a = -8$

$|8 - (-8)| = 16$ 6

$a > 0$



$\Delta = 0 \to b^2 - 4ac = 0 \to (3+2a)^2 = 0 \Rightarrow 3 + 2a = 0 \Rightarrow a = -\frac{3}{2} \times \quad a > 0$

$\Delta > 0 \to (3+2a)^2 > 0$

$a \in \mathbb{R} - \{-\frac{3}{2}\} \quad S > 0 \to -\frac{b}{a} > 0 \quad \frac{-3-2a}{a} > 0$

x		$-\frac{3}{2}$		0	
y	$-$		$+$		$-$

$\boxed{a > 0}$

$(-\frac{3}{2}, 0) \times \to a > 0$ 7

$S > 0 \to -\frac{3+2a}{a} > 0 \to \frac{3+2a}{a} < 0 \to \frac{-\frac{3}{2} \quad 0}{+ \mid - \mid +} \qquad -\frac{3}{2} < a < 0 \ \text{(II)}$

a>0 (I) ← از ناحیه سوم نگذرد ← عرض از مبدا صفر
مثبت و صفر ← ریشه ها

$\text{(I)} \cap \text{(II)} = \emptyset \to$ هیچ مقدار a

$y = x^2 + ax - 2 \qquad x_S = -\frac{b}{2a} = -\frac{a}{2} = -1 \Rightarrow a = 2$

$y = -x^2 - 2x + b \qquad y = x^2 + 2x - 2 \to x^2 + 2x - 2 = 1$

$-x^2 - 2x + b = 1 \qquad x^2 + 2x - 3 = 0 \qquad x = -1 \to$ محور تقارن

$-x^2 - 2x + b - 1 = 0 \qquad (x+3)(x-1) = 0 \qquad |1 - (-1)| = 2 \quad |-3 - (-1)| = 2$ 8

$x^2 + 2x + 1 - b = 0 \qquad \boxed{ab = 8 \to 2 \times 4}$

$x = -1 \to$ محور تقارن

$x = \frac{-2 \pm \sqrt{4 - 4(1-b)}}{2} = \frac{-2 \pm \sqrt{4b}}{2} = -1 \pm \sqrt{b} \to$ فاصله از محور تقارن $= \sqrt{b} \to \sqrt{b} = 2 \Rightarrow b = 4$

ریشه ها

① $2x^2 - ax + b = 0 \qquad \alpha + \frac{1}{2}, \beta + \frac{1}{2} \quad (\alpha + \frac{1}{2}) + (\beta + \frac{1}{2}) = \alpha + \beta + 1 = \frac{a}{2} \qquad P = \frac{c}{a} = \frac{b}{2}$

② $2ax^2 + ax - 6 = 0 \qquad$ (ریشه ها) $\alpha, \beta \quad S = \alpha + \beta = -\frac{b}{a} = \frac{-a}{2a} \qquad (\alpha + \frac{1}{2})(\beta + \frac{1}{2}) = \alpha\beta + \frac{1}{2}\alpha + \frac{1}{2}\beta + \frac{1}{4}$

$P = \frac{c}{a} = \frac{-6}{2} = -3 \qquad = P + \frac{1}{2}S + \frac{1}{4} = -3 + -\frac{1}{4} + \frac{1}{4}$ 9

$\frac{a}{2} - \frac{-a}{2a} = 1 \qquad \frac{a^2 + a}{2a} = 1 \qquad 2a = a^2 + a \qquad = -3$

$a^2 + a - 2a = 0$

$2x^2 + x - 6 = 0 \to ② \qquad a^2 - a = 0 \quad a(a-1) = 0 \qquad \Rightarrow b = -6$

$\left[\frac{ab}{4}\right] = \left[\frac{-6 \times 1}{4}\right] = \left[-\frac{6}{4}\right] = -2$

$x^2 + 4x + m = 0 \qquad x^2 + 4x + m = x^2 + 2x - 3m$

$x^2 + 2x - 3m = 0 \qquad 4x + 4m = 0 \qquad 3 - (-1) = \boxed{4}$

$\Rightarrow 4(x + m) = 0 \qquad$ اختلاف ریشه های غیر مشترک $\qquad (x+5)(x-3) = 0$

$m^2 - 5m = 0 \qquad x + m = 0$

$x = -m \qquad x^2 + 2x - 15 = 0$ 10

$m^2 - 5m = 0$

$m(m - 5) = 0 \qquad m = 5 \qquad x^2 + 4x + 5 = 0$

$m = 0 \times \quad m = 5$

$(x+5)(x+1) = 0$

$-5 \quad -1$