نام و نام خانوادگی ..... پاسخنامه تشریحی تکلیف شماره ۲۳ کلاس دهم B .....

۱

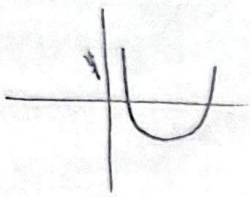
$\frac{-b}{2a} = -1 \Rightarrow b = 2a$ $\Rightarrow ax^2 + 2ax + c = y$ $(-1, 9): 9 = a - 2a + c$

$\Rightarrow -a + c = 9$ $(2, 1): 1 = 9a + 4a + c \Rightarrow 13a + c = 1$

$13a + c = 1$

$a = -\frac{1}{2}$ و $b = -1$ و $c = \frac{17}{2}$ $\Rightarrow -\frac{1}{2}x^2 - x + \frac{17}{2} = y$ ✓ (۲)

۲



$\Rightarrow \Delta' > 0$ $\Rightarrow \frac{-m}{2} > 0 \Rightarrow m < 0$

$\Rightarrow P > 0$ $\frac{m+4}{2} > 0 \Rightarrow m > -4$

$\Rightarrow \Delta > 0$ $m^2 - 8m - 48 > 0$ $\frac{-4 \quad 12}{+ \quad 1 \quad -1 \quad +}$ $\Rightarrow R - [-4, 12]$

$\cap \Rightarrow -4 < m < -4$ ✓ (۲)

۳

$\frac{-b}{2a} = \frac{1}{\frac{c}{2a}} \Rightarrow \frac{-b}{a} = \frac{a}{c} \Rightarrow \frac{1-2m}{3} = \frac{3}{2-m}$

$\Rightarrow 9 = 2 - 4m - m + 2m^2 \Rightarrow 2m^2 - 5m - 7 = 0 \Rightarrow m = \frac{7}{2}$ ✓ $m = -1$ غ ق ق

$\therefore m = \frac{7}{2}$ (۲)

۴

$y = x^2 - 4 \Rightarrow x_1 = 2$ و $x_2 = -2$

$x_2^2 + \frac{1}{x_1} = -1 + \frac{1}{2}$ و $x_1^2 + \frac{1}{x_2} = 1 - \frac{1}{2}$ (۵)

$\Rightarrow x^2 - 5x + 6 = x^2 - 10x - \frac{225}{4}$ (جواب پایین صفحه)

۵

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

$\times \sqrt[3]{x^2}$ $= \left(\sqrt[3]{x^2}\right)^2 + 1 + \sqrt[3]{x^2}\left(\sqrt[3]{x^2} - 1\right) = 2x$

$\Rightarrow x^2 - 1 = 2x = 1$ $x^2 - 2x - 1 < 0$ $\Rightarrow S = \frac{-b}{a} = 2$ ✓ (۲)

۶

$3\alpha^2$ و $3\alpha \Rightarrow P = 3\alpha^3 = \frac{4}{3} \Rightarrow \alpha^2 = \frac{4}{9} \Rightarrow \alpha = \pm\frac{2}{3}$

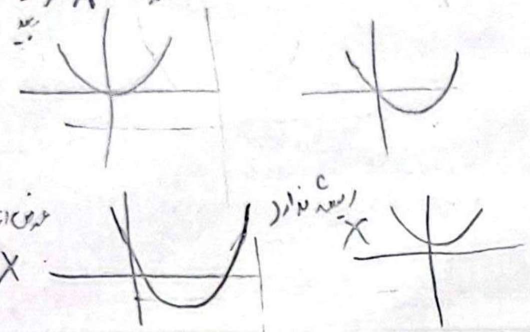
$\frac{2}{3} : x^2 - Sx + P \Rightarrow x^2 - \frac{8}{3}x + \frac{4}{3} \xrightarrow{\times 3} 3x^2 \,(-8)\, x + 4$

$-\frac{2}{3} : x^2 - Sx + P \Rightarrow x^2 + \frac{8}{3}x + \frac{4}{3} \xrightarrow{\times 3} 3x^2 \,(+8)\, x + 4$

اختلاف $= 8 - (-8) = 16$

(۲)

۷



$ax^2 + (3 + 2a)x - y$

$a > 0$

$S > 0 \Rightarrow \frac{-3 - 2a}{a} > 0 \Rightarrow (-\frac{3}{2}, 0)$

$\Rightarrow \cap = \varnothing \Rightarrow$ هیچ مقدار a

(۲)

۸

$y = x^2 + ax - 2 \Rightarrow x^2 + 2x - 2 = y$

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

$y = -x^2 - 2x + b$

$\Rightarrow -x^2 + 2x - 2 = 1$

$+x^2 - 2x + b = 1 \Rightarrow b - 2 = 2 \Rightarrow b = 4 \Rightarrow ab = 8$

(۲)

۹

(۱٫۷۵)

$2x^2 - ax + b = 0 \qquad 2ax^2 + ax - 6 = 0$

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

$\Rightarrow \frac{a}{2} = -\frac{1}{2} \Rightarrow a = 1 \Rightarrow 2x^2 + x - 6$ ؛ $x = -2$ ، $x = \frac{3}{2}$

$\Rightarrow$ ریشه‌های معادله اول $= 2$ و $-\frac{3}{2} \Rightarrow x^2 - \frac{1}{2}x - 3 \xrightarrow{\times 2} 2x^2 - x - 6 \Rightarrow b = -6$

$\Rightarrow \left[\frac{ab}{4}\right] = \left[\frac{-6 \times 1}{4}\right] = \left[-\frac{3}{2}\right] = -2$

۱۰

(۲)

$\alpha^2 + 2\alpha - 3m = \alpha^2 + 6\alpha + m \Rightarrow \alpha = -m$

$x^2 + 2x - 3m \Rightarrow x = -1 \pm \sqrt{1 + 3m} \qquad x^2 + 6x + m = 0 \Rightarrow x = -3 \pm \sqrt{9 - m}$

$-1 + \sqrt{1 + 3m} = \alpha = -m \Rightarrow m^2 + 1 - 2m = 1 + 3m \Rightarrow m = 5$ یا $m \neq 0$

$0 = x^2 + 2x - 15 \Rightarrow x = -5$ ، $x = +3$ (مشترک)

$x^2 + 6x + 5 = 0 \Rightarrow x = -5$ ، $x = -1$

$\Rightarrow +3 - (-1) = (+4)$

سوال ۴

$x^2 - x - 6 = 0 \rightarrow S = 1 \;,\; P = -6$

$x^2 - Sx + P = 0 \rightsquigarrow x^2 - \frac{21}{6}x - \frac{121}{6} = 0 \rightarrow 6x^2 - 21x - 121 = 0$

$S = \alpha + \beta = x_1^3 + x_2^3 + \frac{1}{x_1} + \frac{1}{x_2} = (x_1 + x_2)(x_1^2 + x_2^2 - x_1x_2) + \frac{x_2 + x_1}{x_1x_2}$

$\rightarrow (S)(S^2 - 3P - P) + \frac{S}{P} = 12 - \frac{1}{6} = \frac{71}{6}$

$P = \alpha\beta = \left(x_1^3 + \frac{1}{x_2}\right)\left(x_2^3 + \frac{1}{x_1}\right) = x_1^3x_2^3 + x_1^2 + x_2^2 + \frac{1}{x_1x_2} = (P)^3 + S^2 - 3P + \frac{1}{P} = -30 - \frac{1}{6} = \frac{-121}{6}$