۱۷٫۵

نام و نام خانوادگی ..... پاسخنامه تشریحی تکلیف شماره ۲۴ ... کلاس ... دهم ریاضی B .....

۱

الف) $x_s = \frac{-b}{2a} = \frac{4}{4} = 1 \Rightarrow y_s = 1-2-4+1 = -4 \Rightarrow S:(1,-4)$ min $\Rightarrow a>0$ ✓

ب) $x_s = \frac{-b}{2a} = \frac{-3}{-8} = \frac{3}{8} \Rightarrow y_s = 2\left(\frac{9}{64}\right) + 3\left(\frac{3}{8}\right) - 5 = \frac{9}{32} + \frac{12}{8} - \frac{160}{32} = -\frac{121}{32}$

$S:\left(\frac{3}{8}, -\frac{121}{32}\right)$ ✓ (۴)

۲

الف) $x_s = \frac{-b}{2a} = \frac{-8}{2} = 4 \Rightarrow y_s = 9-18+1 = -8 \Rightarrow S:(3,-8)$ min

x	۱	۳	۵
y	۰	-۸	۰

$c=1$ ✓

ب) $x_s = \frac{-b}{2a} = 2$ ، $y_s = 0 \Rightarrow S:(2,0)$ max

x	۱	۲	۳
y	۴	۰	۳

✓ (۴)

۳

$(x^2-x-2)(3x+1) = 3x^3 + kx^2 - 9x - 2$

$3x^3 - 3x^2 - 6x + \square = 3x^3 + kx^2 - 9x - 2 \Rightarrow \square = (k+3)x^2 - 3x - 2 \Rightarrow 0 = +1$

$(x^2-x-2)(3x+1) = 3x^3 - 3x^2 - 6x + 3x - 2 = 3x^3 - 3x^2 - 9x - 2$

$k = -3$ ✓ (۴)

۴

$\sqrt{\alpha} - \sqrt{\beta} = 1 \Rightarrow \alpha + \beta - 2\sqrt{\alpha\beta} = 1 \Rightarrow 3m - 2\sqrt{m} = 1 \Rightarrow 3m - 2\sqrt{m} - 1 = 0 \Rightarrow m - 2\sqrt{m} - 3 = 0 \Rightarrow (\sqrt{m}-3)(\sqrt{m}+1) = 0$

$\sqrt{m} = 1 \Rightarrow 2x^2 - x - 1 = 0 \Rightarrow \frac{c}{a} = -\frac{1}{2}$

$\sqrt{m} = -\frac{1}{3}$ ✗

✓ (۴)

۵

$x=1, \frac{m}{2} \Rightarrow a+b+c=0$ چون

$\frac{m}{2} = \frac{\sqrt{\Delta}}{|a|} = \frac{3}{4} \Rightarrow \frac{m\sqrt{m^2-4m+4}}{4} = \frac{m|m-2|}{4} = \frac{3}{4} \Rightarrow m|m-2| = 3$

۱) $m \geq 2 \Rightarrow m^2 - 2m - 3 = 0 \Rightarrow m = 3, 1$

$m=3 \Rightarrow y = x^2 + x + 1 \Rightarrow x_s = -\frac{1}{2}$ ✓

$m=1 \Rightarrow y = x^2 - 3x + 1 \Rightarrow x = \frac{3}{2}$

۲) $m < 2 \Rightarrow m^2 - 2m + 3 > 0$ ✗

چون $\Delta < 0$ است

(۴)

۶

$\frac{-\Delta}{4a} = \frac{9-4a^2}{4a} = \frac{7}{4} \rightarrow 18 - 8a^2 = 7a \rightarrow 8a^2 + 7a - 18 = 0 \rightarrow \Delta = 625$

$a = \frac{-7 \pm 25}{16}$ → $\frac{18}{16}$ → min ندارد

-2 → max دارد

$\begin{cases} a = 2 \\ a = \frac{-9}{8} \end{cases}$ → قابل قبول

(۱۵)

۷

$\frac{m \times \sqrt{\Delta}}{144} = \frac{2}{3} \rightarrow m\sqrt{\Delta} = 24 \rightarrow m(m-2) = 24 \rightarrow m^2 - 2m - 24 = 0 \rightarrow m = 12, -10$

$\Delta = m^2 + 16m - 48 = m^2 + 16m + 64$

$m = 12 \rightarrow x_S = \frac{-b}{2a} = \frac{m}{2} = \frac{12}{2}$

$m = -10 \rightarrow x_S = \frac{m}{2} = \frac{-10}{2}$

$x^2 - (a+1)x + a = 0 \xrightarrow{a+b+c=0} \begin{cases} x_1 = 1 \\ x_2 = a \end{cases} \rightarrow x_2 = 4$ (۰)

$2x^2 - (4(4)+1)x + b = 0 \rightarrow 2x^2 - 17x + b = 0 \xrightarrow{S=10} \begin{cases} x_1' = 4 \\ x_2' = 6 \end{cases}$

$x_1' \times x_2' - x_1 \times x_2 = 6 \times 4 - 4 \times 1 = 20$ (۱۲)

$4 \times 1 - 6 \times 4 = -20$

۸

$x_S = \frac{-a}{-2a} = \frac{1}{2} \rightarrow 2b\left(\frac{1}{2}\right) - b\left(\frac{1}{2}\right) - 1 = -1 \rightarrow -1 = \frac{-1}{4}a + \frac{1}{2}a + 0 \rightarrow \frac{1}{4}a = -3 \rightarrow a = -12$

$\frac{1}{4}a$

$y = 12x^2 - 12x + 2$

$x_S = \frac{b}{2b} = \frac{1}{2} \rightarrow 12\left(\frac{1}{12}\right) - 12\left(\frac{1}{12}\right) + 2 = \frac{3}{2} - 1 = \frac{1}{2}$

$\frac{-1}{4} = 2b\left(\frac{1}{12}\right) - b\left(\frac{1}{4}\right) - 1 \Rightarrow \frac{3}{12} = \frac{-b}{12} \rightarrow -b = 4 \rightarrow b = -4$

$b - a = -4 - 12 = -16$ ✓ (۲)

$\frac{b}{8} - \frac{b}{4} = \frac{b}{8}$

۹

$B > 0 \rightarrow \alpha < 0$

$\delta \begin{cases} \frac{-b}{2a} = \frac{-4}{100\alpha} > 0 \\ \frac{-\Delta}{2a} = \frac{-16}{100\alpha} > 0 \end{cases}$ → ناقص اول ✓ (۲)

۱۰

$S = \frac{-b}{a} = \alpha + b = 12 = a + b$ ، $P = \frac{c}{a} = \alpha b - 1 = ab \rightarrow a + b = ab + 1$

$(a+b)^2 - 2ab - 12 = ab + 1 \rightarrow a^2 + b^2 + 2ab + 1 - 2ab - 12 = ab + 2$

$a^2 + b^2 - ab - 12 = (ab - 3)(ab + 4) = 0$

$ab = 3$ ✗ ، -4 → اعداد طبیعی

$a + b = ab + 1$

$a + b = 3 + 1 = 4$ ✓ (۲)