

پاسخنامه تشریحی تکلیف شماره ... «۱۳» ... کلاس یازدهم B زمستان ... «ریاضی امانی»

محور x ها را در تمام طول مثبت قطع؟
 $g = (a-1)x^2 + x + 3$ $x=2$ متقاطع
 $-\frac{b}{2a} = 2 = 2 - \frac{1}{2a-2} = \frac{1}{-2a+2} = 2 \Rightarrow 2 - 2a + 2 = 1 \Rightarrow 4a = 3 \Rightarrow a = \frac{3}{4}$
 $a = a - 1 = \frac{3}{4} - 1 = -\frac{1}{4}$
 $\Delta = 1 - 4(-\frac{1}{4})(3) = 1 + 3 = 4$
 $-\frac{b \pm \sqrt{\Delta}}{2a} = \frac{-1 \pm \sqrt{4}}{-\frac{1}{2}} = \begin{cases} \frac{-1+2}{-\frac{1}{2}} = +2 \\ \frac{-1-2}{-\frac{1}{2}} = -2 \end{cases}$ جواب

x	x_1	x_2
$f(x)$	$-$	$+$

$f(x) = mx^2 - \omega x + m$ $m > 0$
 $\Delta = \omega^2 - 4m^2 > 0 \Rightarrow \omega > 2m \Rightarrow \frac{\omega}{m} > 2$
 $= 2 - \frac{\omega}{m} < m < \frac{\omega}{m} \Rightarrow 0 < m < \frac{\omega}{m} = 2 \left(\frac{\omega}{m}, 0 \right)$

$\frac{3-\sqrt{5}}{3}, \frac{3+\sqrt{5}}{3}$
 $b = -3, S = 2$
 $\Delta = \omega, P = \frac{4}{9}$
 $a = \frac{3}{4}$
 $C = \frac{2}{3}$
 $\Delta = b^2 - 4ac = 9 - 4 \times \frac{3}{4} \times C = \omega \Rightarrow 9 - 4C = \omega \Rightarrow 4C = 9 - \omega \Rightarrow C = \frac{9-\omega}{4}$
 $-\frac{b \pm \sqrt{\Delta}}{2a} = \frac{3 \pm \sqrt{\omega}}{3}$
 $\frac{3}{4}x^2 - 3x + \frac{3}{4} = 0 \Rightarrow 9x^2 - 12x + 3 = 0$

α, β ریشه ها $2x^2 - \alpha x + m + 2 = 0$ $\alpha < \beta$ $3\alpha^2 + \beta^2 = 12$ $m = ?$
 $\alpha + \beta = -\frac{b}{a} = +1 \Rightarrow \beta = 1 - \alpha \Rightarrow \beta = 3$ $S = 3 + 1 = 4$ $P = 3 \times 1 = 3$
 $3\alpha^2 + \beta^2 = 12 \Rightarrow 3\alpha^2 + (1-\alpha)^2 = 12 \Rightarrow 3\alpha^2 + 1 - 2\alpha + \alpha^2 = 12 \Rightarrow 4\alpha^2 - 2\alpha - 11 = 0$
 $\Rightarrow 4\alpha^2 - 8\alpha + 4 = 0 \Rightarrow 4\alpha^2 - 2\alpha + 1 = 0 \Rightarrow (\alpha - 1)^2 = 0 \Rightarrow \alpha = 1$
 $x^2 - 5x + p = 0 \Rightarrow x^2 - 4x + 3 = 0 \Rightarrow x^2 - 8x + 4 = 0 \Rightarrow m + 2 = 4 \Rightarrow m = 2$

نقطه $A(2, 9)$ محور عرض ها را در نقطه ای به عرض ۵ قطع، در تمام بازه ای که در بالای
 $y = a(x-h)^2 + k$ $(0, 5)$ $y = -1(x-2)^2 + 9$
 $y = a(x-2)^2 + 4$ $\Rightarrow y = -x^2 + 4x + 5$
 $\omega = a(-2)^2 + 4$ $\Rightarrow y = -(x^2 - 4x - 5)$
 $\Rightarrow \omega = 4a + 4 \Rightarrow 4a = -4 \Rightarrow a = -1$ $\Rightarrow y = -(x-5)(x+1)$
 $a < 0 \Rightarrow \max$

$-1 < x < 5$

$\alpha, \beta \xrightarrow{\text{نسبت}} \alpha \kappa^2 - \nu \alpha + 9\beta = 0 \quad (3\beta > 0) \quad \frac{1}{\alpha} + \frac{1}{\beta} = ? \quad \frac{\alpha + \beta}{\alpha\beta}$
 $\kappa = \alpha \Rightarrow \alpha \kappa^2 - \nu \alpha + 9\beta = 0 \Rightarrow 9\beta = \nu \alpha - \alpha^2 \Rightarrow -\frac{1}{\alpha} = \nu \alpha - \alpha^2 \Rightarrow -1 = \nu \alpha^2 - \alpha^3 \Rightarrow \alpha^3 - \nu \alpha^2 - 1 = 0$
 $\kappa = \beta \Rightarrow \alpha \beta^2 - \nu \beta + 9\beta = 0 \Rightarrow \alpha \beta^2 + 4\beta = 0 \Rightarrow \beta(\alpha \beta + 4) = 0 \Rightarrow \alpha \beta = -4 \Rightarrow \beta = -\frac{4}{\alpha}$
 $\Rightarrow t^2 - \nu t - 1 = 0 \Rightarrow t = \frac{\nu \pm 11}{2} = \begin{cases} 9 \\ -1 \end{cases} \times \frac{1}{\alpha} \Rightarrow \alpha^2 = 9 \Rightarrow \alpha = \pm 3 \Rightarrow \begin{cases} \alpha = 3 & \beta = -\frac{4}{3} \\ \alpha = -3 & \beta = \frac{4}{3} \end{cases}$
 $\Delta = 49 + 4\nu = 121$
 $\frac{\alpha + \beta}{\alpha\beta} = \frac{-\frac{\nu}{\alpha}}{-1} = \frac{\nu}{\alpha}$

$\alpha, \beta \xrightarrow{\text{نسبت}} \kappa^2 + m\kappa - \nu m = 0 \quad \alpha^2 - m\beta = \Lambda \quad S = \alpha + \beta = ? \quad -\frac{b}{a} = -m$
 $\alpha^2 + \alpha m - \nu m = 0 \Rightarrow \alpha^2 = -\alpha m + \nu m$
 $\alpha^2 - m\beta = \Lambda \Rightarrow -m\alpha + \nu m - m\beta = \Lambda \Rightarrow -m(\alpha + \beta) + \nu m = \Lambda$
 $\Rightarrow m^2 + \nu m = \Lambda \Rightarrow m^2 + \nu m - \Lambda = 0 \quad \Delta = \nu^2 + 4\Lambda = 49 \quad m = \frac{-\nu \pm 4}{2} = \begin{cases} -3 \\ +7 \end{cases}$
 $m = -3 \Rightarrow S = -m = 3$
 $m = +7 \Rightarrow S = -m = -7$

$f(x) = \frac{m}{a}x^2 + \frac{\nu}{b}x + \frac{m}{c} + \nu \quad K = ? \Rightarrow K = +3$
 $-\frac{b^2 - 4ac}{4a} = \Lambda \Rightarrow -\frac{b^2 - 4ac}{4a} = \Lambda \Rightarrow -b^2 + 4ac = 4\Lambda a$
 $\Rightarrow -14 + 4(m)(\frac{m}{\nu} + \nu) = 4\Lambda m \Rightarrow 4m^2 - 14m - 4\Lambda = 0$
 $\Delta = 14^2 + 16\Lambda = 156 \quad \frac{14 \pm \sqrt{156}}{8} = \begin{cases} m = 3 \\ m = -2 \end{cases}$
 $\Rightarrow \text{بما } \Delta < 0 \Rightarrow m = -2$
 $-2\kappa^2 + 4\kappa + 4 = f(x) \Rightarrow \Delta = 14 + 16 = 30 \quad \frac{-4 \pm \sqrt{30}}{-2} = \begin{cases} \kappa = +3 \\ \kappa = -1 \end{cases}$

$\frac{1}{\nu - \sqrt{10}} + \frac{1}{\nu + \sqrt{10}} = \frac{\nu + \sqrt{10} + \nu - \sqrt{10}}{\nu^2 - 10} = \frac{2\nu}{\nu^2 - 10} = \frac{2}{-14} = -\frac{1}{7}$
 $C = f \quad -\frac{b}{\nu a} = \nu \Rightarrow -b = \nu a \Rightarrow b = -\nu a \Rightarrow b = -\frac{1}{\nu} \times -\frac{1}{7} = \frac{1}{7}$
 $-\frac{b^2 - 4ac}{4a} = 4 \Rightarrow -\frac{b^2 - 4ac}{4a} = 4 \Rightarrow -b^2 + 4ac = 16a$
 $\Rightarrow -14a^2 + 14a - 2fa = 0 \Rightarrow -14a^2 - \Lambda a = 0$
 $\Rightarrow a(-14a - \Lambda) = 0 \Rightarrow \begin{cases} a = 0 \times \\ a = -\frac{1}{14} \end{cases}$
 $-\frac{1}{\nu} \kappa^2 + \nu \kappa + f = 0 \Rightarrow -\kappa^2 + 4\kappa + 14 = 0 \Rightarrow \Delta = 14^2 + 4 = 196$
 $\frac{-4 \pm \sqrt{196}}{-2} = \begin{cases} \kappa = 1 + \sqrt{10} \\ \kappa = 1 - \sqrt{10} \end{cases}$

$\kappa^2 - (fa + f)\kappa + (\nu a^2 + 9a + \nu) = 0$
 $\kappa = \nu \Rightarrow \nu a^2 - \nu a - 1 = 0 \quad \Delta = b^2 - 4ac > 0 \Rightarrow 14a^2 + 4\nu a + 14 - 14a^2 - 2fa - 14 = 0$
 $\Delta = b^2 - 4ac = 14 \quad a = \frac{\nu \pm f}{4} \Rightarrow a = \begin{cases} +1 \\ -\frac{1}{\nu} \end{cases}$
 $\Rightarrow \begin{cases} a = 1 \Rightarrow S = -\frac{b}{a} = \Lambda \Rightarrow \Lambda - \nu = 9 \\ a = -\frac{1}{\nu} \Rightarrow S = -\frac{b}{a} = \frac{\Lambda}{\nu} \Rightarrow \frac{\Lambda}{\nu} - \nu = \frac{\nu}{\nu} \end{cases}$