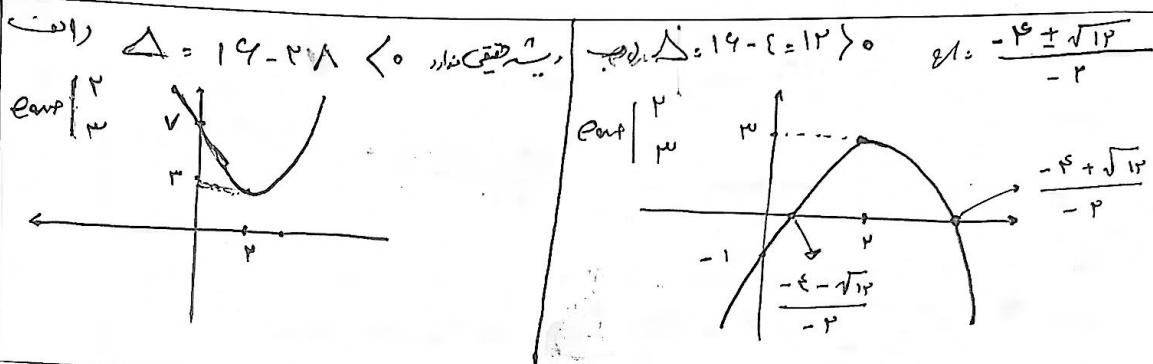


نام و نام خانوادگی کلاس شماره ۱۲ پایانه دوم پاسخنامه تشریحی تکلیف شماره ۱۲



$\Delta = (m+1)^2 - 4(2)(\frac{1}{2}m+2) = m^2 + 2m + 1 - 4m - 16 = m^2 - 2m - 15 = (m-5)(m+3)$

الف) $\Delta > 0 \rightarrow m^2 - 2m - 15 > 0 \rightarrow \frac{-2 \pm \sqrt{4+60}}{2} \rightarrow (-\infty, -3) \cup (5, +\infty)$

ب) $\Delta = 0 \rightarrow m^2 - 2m - 15 = 0 \rightarrow m = 5 \text{ یا } -3 \rightarrow m = \{5, -3\}$

ج) $\Delta < 0 \rightarrow m^2 - 2m - 15 < 0 \rightarrow \frac{-2 \pm \sqrt{4+60}}{2} \rightarrow m = (-3, 5)$

د) $\Delta \geq 0 \rightarrow m^2 - 2m - 15 \geq 0 \rightarrow \frac{-2 \pm \sqrt{4+60}}{2} \rightarrow m = (-\infty, -3] \cup [5, +\infty)$

الف) $\Delta > 0 \rightarrow (-2(m+1))^2 - 4(m-2)(1) > 0 \rightarrow 4(m^2 - 8m + 21) > 0$ ب) $\Delta < 0$ $\rightarrow \frac{2(m+1)}{m-2} < 0 \rightarrow \frac{-1 \pm \sqrt{1+4}}{2} \rightarrow 1 < m < 2$

$P > 0 \rightarrow \frac{10}{m-2} > 0 \rightarrow m-2 > 0 \rightarrow m > 2$

$\Rightarrow$ برای هیچ مقدار بی‌قرار نیست

ب) $\Delta > 0 \checkmark$ $P < 0 \rightarrow \frac{10}{m-2} < 0 \rightarrow m < 2$ ج) $\frac{2(m+1)}{2(m+2)} < 0 \rightarrow \frac{-1 \pm \sqrt{1+4}}{2} \rightarrow 1 < m < 2$

$\Rightarrow -1 < m < 2$ چون محور تقاطع ریشه ها از راس می‌گذرد باید راس می‌باشد تا شرط فاصله برقرار شود.

الف) چون عرض از مبدأ عددی مثبت است کافی است که راس در پایین باشد تا از هر α ناصیه بگذرد.

$\Rightarrow a < 0 \rightarrow m-2 < 0 \Rightarrow m < 2$

ب) $\alpha = -2 \rightarrow \frac{2(m+1)}{2(m-2)} = -2 \Rightarrow -2m + 4 = m+1 \Rightarrow 3m = 3 \Rightarrow m = 1$

$\Delta \geq 0 \rightarrow (-2 \sin \alpha)^2 - 4(\frac{2}{3})(\frac{3}{2}) \rightarrow 4 \sin^2 \alpha - 4 \geq 0 \rightarrow 4 \sin^2 \alpha \geq 4$

$\rightarrow \sin^2 \alpha \geq 1 \Rightarrow \begin{cases} \sin \alpha = 1 \\ \sin \alpha = -1 \end{cases} \Rightarrow \Delta = 0$

$\sin \alpha = 1 \rightarrow \frac{2}{3}a^2 - 2a + \frac{3}{2} = 0 \Rightarrow a = \frac{2}{3} = \frac{2}{3}, 1, 5 \checkmark$

$\sin \alpha = -1 \rightarrow \frac{2}{3}a^2 + 2a + \frac{3}{2} = 0 \Rightarrow a = \frac{-2}{\frac{2}{3}} = \frac{-9}{2} = -4, 5 \times$

$$(P_{n+1} - P_n - 1)(P_{n+1} - P_n - \omega) : 9a^2 - 11a^2 - 11a^2 + 11a^2 + \omega$$

$$\begin{array}{l} 9a^2 - 11a^2 - 11a^2 + 11a^2 + \omega \quad | \quad -a^2 + 1 \\ -9a^2 + 9a^2 \quad | \quad -9a^2 + 11a^2 + \omega \\ \hline -11a^2 - \omega a^2 + 11a^2 + \omega \\ + 11a^2 - 11a^2 \\ \hline -\omega a^2 + \omega \\ + \omega a^2 - \omega \\ \hline 0 \end{array} \Rightarrow \text{max} = \frac{-\Delta}{4a} = \frac{(11)^2 - 4(-9)(\omega)}{4 \cdot 9} = \frac{121 + 36\omega}{36}$$

$$\begin{aligned} 3\beta - \omega p &= V \Rightarrow \frac{3m+9}{m} - \frac{-1}{m} = V \Rightarrow \frac{3m+10}{m} = V \Rightarrow 3m+10 = Vm \\ \beta &= \frac{-b}{a} = \frac{m+9}{m}, p = \frac{-r}{m} \xrightarrow{m=9} \beta = \frac{9}{9} = \frac{3}{3}, p = \frac{-9}{9} = \frac{-1}{3} \\ \alpha + \beta : \beta - 2p &= \left(\frac{3}{3}\right) - 2\left(\frac{-1}{3}\right) = \frac{9}{9} + 1 = \frac{10}{9} \end{aligned}$$

$$\begin{aligned} \beta &= \alpha + \beta, \omega \rightarrow \alpha = \omega - \beta \rightarrow 3\alpha = 3\omega - 3\beta \quad \frac{3\alpha + 3\beta\omega}{\omega\beta^2} = \frac{-3\beta + \beta^2\omega + 3\omega}{\omega\beta^2} \\ \beta^2 - \omega\beta + 3\omega &\rightarrow \beta^2 : \omega\beta - 3 \\ \rightarrow \frac{-3\beta + \beta^2\omega + 3\omega}{\omega\beta^2} &= \frac{\beta(\beta^2 - 3) + 3\omega}{3\beta^2} \quad \beta^2 : (\beta^2)^2 : (\omega\beta - 3)^2 = (3\omega\beta^2 + 9 - 6\omega\beta) \\ \rightarrow 2\omega(\omega\beta - 3) + 9 - 6\omega\beta &= 10\omega\beta - 36 \rightarrow \beta(\beta^2 - 3) : \beta(10\omega\beta - 36) \\ = 10\omega\beta^2 - 36\beta &= 10\omega\beta(3 - \omega) - 36\beta : 36\omega\beta - 36\omega \rightarrow \frac{36\omega\beta(3 - \omega) + 36}{\omega(10\omega\beta - 36)} = \frac{19(36\omega\beta - 36)}{36\omega\beta - 36} = 19 \end{aligned}$$

$$\begin{aligned} \text{معرف از مبدا} &= C : f \rightarrow y = aax^2 + bax + f \\ a_1 = 9 &\rightarrow 3a + 3b + 3 = 3 + 1 \rightarrow 3a + 3b = 10 \xrightarrow{b=3} 10a = 1 \Rightarrow a = 1 \\ a_1 = -9 &\rightarrow 9a - 3b + 3 = -9 + 1 \rightarrow 9a - 3b \rightarrow b : 3a \xrightarrow{a=1} b = 3 \\ y : a_1^2 + 3a_1 + 3 & \quad \text{نقطه} : \frac{-b}{2a} = \frac{-3}{3} = -1, \omega \\ \text{نقطه} : a_1 &= -1, \omega \end{aligned}$$

$$\begin{aligned} 3a_1^2 + (m+1)a_1 + m+9 &= a_1 \rightarrow 3a_1^2 + ma_1 + a_1 + m+9 - a_1 : 0 \rightarrow 3a_1^2 + ma_1 + m+9 = 0 \\ \Delta &= 0 \rightarrow m^2 - 4m - 36 = 0 \rightarrow m = \frac{4 \pm \sqrt{16 + 144}}{2} = \frac{4 \pm 10}{2} \\ \rightarrow \begin{cases} m = 14 \times \\ m = -6 \checkmark \end{cases} &\rightarrow \frac{3a_1^2 - 6a_1 - 3}{3a_1} = \frac{-(m+1)}{3} > 0 \rightarrow m+1 < 0 \rightarrow m < -1 \\ \Rightarrow & \boxed{m = -6} \end{aligned}$$