

Subject : ()

نیمه فاصله دار

۱۸/۷/۵

Date :

$$y = (a-1)x^r + x + r$$

$$\frac{-b}{2a} = \frac{-1}{2(a-1)} = \frac{-1}{2a-2}$$

①

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

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

۵

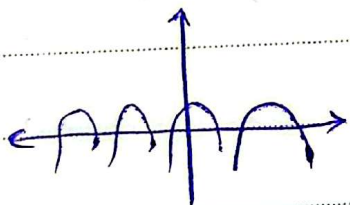
$$\left(\frac{1}{2} - 1\right)x^r + x + r = -\frac{1}{2}x^r + x + r = 0 \xrightarrow{x-\frac{1}{2}} x^r - \frac{1}{2}x - r = 0$$

$$(x - \frac{1}{2})(x + r) = 0 \Rightarrow \begin{cases} x = \frac{1}{2} \\ x = -r \end{cases}$$

$$f(x) = mx^r - \frac{1}{2}x + m$$

$$f(x) \begin{array}{c|cc} x & x_1 & x_2 \\ \hline & - & + \end{array}$$

۵ ②



$$\frac{-\frac{1}{2}}{r} < m < 0$$

$$\Delta > 0 \quad a < 0$$

$$b^2 - 4ac > 0 \quad m < 0$$

$$2\delta - 2mx + m = 2\delta - 2m^r$$

$$-\frac{\delta}{r} < m < \frac{\delta}{r}$$

$$(\delta + 2m)(\delta - 2m)$$

$$\delta = -2m \quad \delta = 2m$$

$$\Rightarrow m = -\frac{\delta}{2} \quad \frac{\delta}{2} = m$$

$$\frac{-\delta}{2} \quad \frac{\delta}{2}$$

m بین دو نقطه قرار می گیرد و در این صورت باید در دامنه داشته باشد
همینطور $-\frac{\delta}{2}$ و $\frac{\delta}{2}$ نمی تواند باشد

$$x^r - 5x + p = 0 \Rightarrow x^r - x + \frac{p}{4} = 0 \Rightarrow x^r - x + \frac{1}{4} = 0$$

$$S = \frac{1-\sqrt{5}}{4} + \frac{1+\sqrt{5}}{4} = \frac{2}{4} = \frac{1}{2}$$

$$P = \left(\frac{1-\sqrt{5}}{4}\right)\left(\frac{1+\sqrt{5}}{4}\right) = \frac{1-5}{16} = -\frac{1}{4}$$

$$S = \frac{1}{2} = r$$

$$x^r - \frac{1}{2}x + m + r = 0$$

m = ?

$$\alpha^r + \beta^r = S^r - 2P$$

$$\alpha < \beta$$

$$\alpha^r + \beta^r = 1^r$$

۵ ③

$$2\alpha^r + 2\beta^r + \alpha^r - \beta^r = 1^r$$

$$2(\alpha^r + \beta^r) + (\alpha + \beta)(\alpha - \beta)$$

Arman

$$= 14 - 2 \times \frac{m+p}{r} \Rightarrow 14 - m - p = 14 - m$$

$$= 14$$

البرهان

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$$r(\alpha^r + \beta^r) + \underbrace{(\alpha + \beta)}_r (\alpha - \beta) = 1r$$

(*)

$$\alpha - \beta = \frac{\sqrt{\Delta}}{|a|} \Rightarrow \frac{(-1)^r - r \times r \times (m+r)}{r} \Rightarrow \frac{\sqrt{r^2 - 4m}}{r}$$

$$1r - rm + r\sqrt{r^2 - 4m} = 1r \Rightarrow 1r - rm = -r\sqrt{r^2 - 4m}$$

نقسم الطرفين على r ~~نقسم الطرفين على r~~

$$1 - m + \sqrt{r^2 - 4m} = 1 \Rightarrow 1 - m = -\sqrt{r^2 - 4m}$$

$$m^2 - 4m + 4 = r^2 - 4m \Rightarrow m^2 - 4m + 4 = 0 \Rightarrow (m-2)^2 = 0$$

$$\boxed{m=2}$$

$$S(2,9) \quad (0,d)$$

دست باز باشد (د)

$$y = A(x-h)^2 + y_s \Rightarrow y = A(x-2)^2 + 9$$

$$\xrightarrow{(0/d)} \quad \begin{aligned} & d = A(0-2)^2 + 9 \\ & 4A + 9 = d \Rightarrow 4A = -1 \Rightarrow A = -1 \end{aligned}$$

(5)

$$\Rightarrow y = -1(x-2)^2 + 9 \Rightarrow \frac{-x^2 + 4x - 4 + 9}{x^2 - 4x + 4} = \frac{-x^2 + 4x + 5}{x^2 - 4x + 4}$$

$$\Rightarrow -x^2 + 4x + 5 = 0 \Rightarrow x^2 - 4x - 5 = 0 \quad (x-5)(x+1) = 0$$

$$\begin{array}{c} -1 \quad 5 \\ \hline -x + 5 \\ -x + 5 \end{array}$$

$$x \in (-1, 5)$$

$$\alpha x^2 - 4x + 9\beta = 0 \quad \frac{1}{\alpha} + \frac{1}{\beta} \quad \beta > 0 \quad (6)$$

$$S = \frac{V}{\alpha} = \alpha + \beta$$

دست باز باشد α, β (1,5)

$$p = \frac{9\beta}{\alpha} = \alpha \cdot \beta \Rightarrow \alpha^2 \cdot \beta = 9\beta \xrightarrow{\beta > 0} \alpha^2 = 9 \Rightarrow \alpha = \pm 3$$

$$\alpha = 3 \Rightarrow \frac{V}{\mu} = 3 + \beta \Rightarrow \beta = -3 + \frac{V}{\mu} = \frac{-3}{3} \quad \text{غیر متبدل}$$

- Arman $\alpha = -3 \Rightarrow \frac{V}{-3} = -3 + \beta \Rightarrow \beta = 3 - \frac{V}{\mu} = \frac{3}{3}$ دست باز

2) Nikosia

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$$\frac{1}{\alpha} + \frac{1}{\beta} = \frac{1}{-r} + \frac{1}{\frac{r}{m}} \Rightarrow \frac{-1}{r} + \frac{m}{r} = \boxed{\frac{m}{r}} \checkmark$$

$$\alpha^r + m\alpha - r m = 0 \Rightarrow \alpha$$

$$\alpha^r + m\alpha - r m = 0$$

$$\alpha^r = -m\alpha + r m$$

$$\alpha^r - m\beta = 1$$

$$\alpha + \beta = -\frac{m}{1}$$

$$\alpha, \beta = -r m$$

$$\Rightarrow \underbrace{-m\alpha - m\beta + r m = 1}_{-m(\alpha + \beta)} \Rightarrow m^r + r m - 1 = 0$$

$$\underbrace{-m(\alpha + \beta)}_{-m}$$

$$(m+1)(m-r) = 0$$

$$\downarrow \quad \downarrow$$

$$\boxed{-1} \quad \boxed{r}$$

$$D \times X \quad D \times \checkmark$$

Nikosia, B, \alpha \quad \textcircled{\checkmark}

1, \omega

$$\alpha + \beta = -m$$

$$= \boxed{-1} - (-1)$$

$$= \boxed{0}$$

X

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Control System

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$$\frac{-\Delta}{K_a} = 1 \quad -14 + Km^r + rAm = rAm$$

$$Km^r - rAm - 14 = 0, \quad m^r - rAm - 1 = 0$$

(1, 14) ①

$\begin{matrix} F \\ \swarrow \\ \boxed{-r} \end{matrix}$

$$f(s) = -r s^r + K s + 14 \quad \frac{\checkmark}{-r} \quad s^r + K s - 14 = 0$$

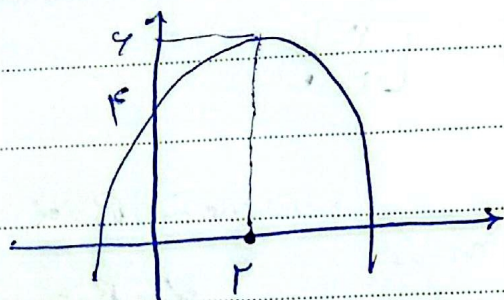
$$(s + 14) / (s - r) = 0$$

$$\frac{-14}{-r} = 1, \quad \frac{r}{-r} = -1$$

$K = r$

$\boxed{r = 1}$ $\checkmark$

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معبر عن المعادلة كالتالي

$$\frac{1}{\alpha} + \frac{1}{\beta}$$

$$y = A(x-h)^2 + y \Rightarrow y = A(x-r)^2 + y$$

$$(0, k) \Rightarrow y = A(0-r)^2 + y = k \Rightarrow kA + y = k$$

$$kA = -y \Rightarrow A = \frac{-y}{k} = \boxed{-\frac{1}{r}}$$

$$\Rightarrow y = -\frac{1}{r}(x-r)^2 + y = -\frac{1}{r}x^2 + 2x - r = 0$$

$$\xrightarrow{x-r} x^2 - 2x + r = 0$$

$$\frac{1}{\alpha} + \frac{1}{\beta} = \frac{\alpha + \beta}{\alpha\beta} = \frac{k}{-1} = \boxed{-\frac{1}{r}}$$

$$x^2 - (k\alpha + k)x + (r\alpha^2 + 4\alpha + r) = 0 \quad \alpha = r$$

$$\alpha + \beta = k\alpha + r$$

$$\Rightarrow \boxed{\beta = k\alpha + r}$$

$$\alpha \cdot \beta = r(k\alpha + r) = 1\alpha + k = r\alpha^2 + 4\alpha + r \quad m = \frac{4}{r}$$

$$\Rightarrow r\alpha^2 - (k\alpha + r) = 0 \xrightarrow{\alpha=r} \alpha^2 - 2\alpha - r = 0$$

$$\alpha = 1 \rightarrow x^2 - 1x + 1r = 0 \quad (x-r)(x-4) = 0$$

$$\alpha = -\frac{1}{r} \rightarrow x^2 + \frac{1}{r}x + \frac{k}{r} = 0$$

$$\frac{r}{r} = 1 \quad \frac{-1}{r}$$

$$x^2 + kx + 1r = 0 \rightarrow x^2 + 1x + 1r = 0 = (x+r)(x-4)$$

$$\frac{+y}{r} = x + r$$

Arman