

تکلیف شماره ۲۴

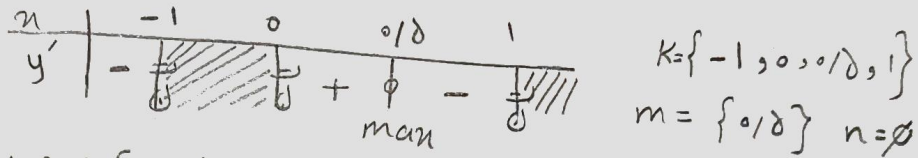
پارسی بنی زاده - دوازدهم دختر B

$$x(1-|x|) \geq 0 \quad \frac{-1}{+} \frac{0}{-} \frac{1}{+} \frac{-}{-} \quad D = (-\infty, -1] \cup [0, 1] \quad (1)$$

$$f = \sqrt{x+x^2} \quad \left| \quad f = \sqrt{x-x^2} \right.$$

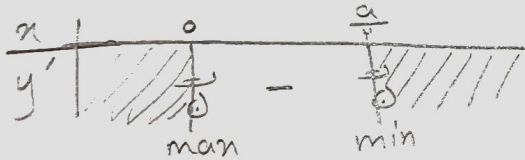
$$f' = \frac{1+2x}{2\sqrt{x+x^2}} \rightarrow x = \frac{-1}{2} \quad \left| \quad f' = \frac{1-2x}{2\sqrt{x-x^2}} \rightarrow x = \frac{1}{2} \right.$$

$\rightarrow n = -1, 0 \quad \left| \quad \rightarrow n = 0, 1$



$$m+n+k = 1+0+\epsilon = \delta$$

$$f' = \frac{1}{2\sqrt{x}} - \frac{x'}{x\sqrt{a-2x}} = \frac{\sqrt{a-2x} - 2\sqrt{x}}{2\sqrt{x}\sqrt{a-2x}} \rightarrow x=0, \frac{a}{4} \quad (2)$$



$$Df = [0, \frac{a}{4}]$$

$\max = \sqrt{a} \quad \min = \sqrt{\frac{a}{4}}$

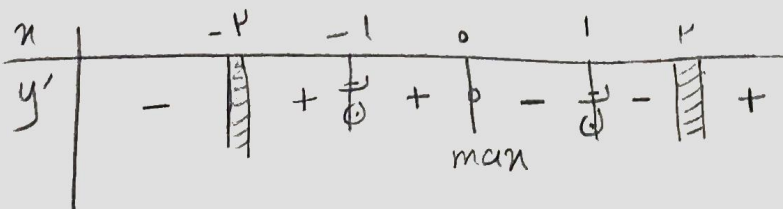
$$\sqrt{a} \times \sqrt{\frac{a}{4}} = \frac{a}{\sqrt{4}} = \sqrt{4} \Rightarrow a = 2\sqrt{4} \approx \epsilon, \dots \quad [a] = \epsilon$$

$$f = \frac{x^\epsilon - \epsilon x^\epsilon}{x^\epsilon - 1} \quad \left| \quad f = \frac{-x^\epsilon + \epsilon x^\epsilon}{x^\epsilon - 1} \right. \quad (3)$$

$$f' = \frac{2x(x^\epsilon - 2x^\epsilon + \epsilon)}{(x^\epsilon - 1)^2} \rightarrow \pm 1 \quad \left| \quad f' = \frac{-2x(x^\epsilon - 2x^\epsilon + \epsilon)}{(x^\epsilon - 1)^2} \right. \rightarrow \pm 1 \quad \left| \quad f' = \frac{2x(x^\epsilon - 2x^\epsilon + \epsilon)}{(x^\epsilon - 1)^2} \rightarrow \pm 1 \right.$$

$$f'_+(2) = \frac{14}{2^2} \quad f'_-(2) = \frac{-14}{2^2} \quad n=2 \text{ مستقیم است}$$

$$f'_+(-2) = \frac{14}{2^2} \quad f'_-(-2) = \frac{-14}{2^2} \quad n=-2 \text{ مستقیم است}$$



تابع در $n=0$ نقطه استرس دارد

$$f' = \mu a x^r + r b x + c \quad (E)$$

$$f'(0) = 0 \Rightarrow f'(0) : c = 0$$

$$f(0) = 0 \Rightarrow d = 0$$

$$f'(1) = 0 \Rightarrow \mu a + r b = 0$$

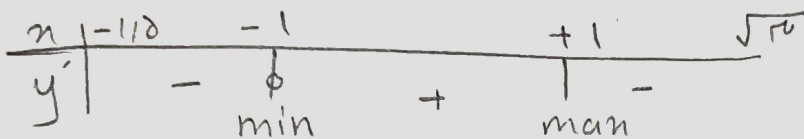
$$f(1) = 1 \Rightarrow a + b = 1$$

$$a = -r \quad b = r$$

$$ab = -r$$

$$x = [-1, \sqrt{r}] \rightarrow r - x^2 \geq 0 \quad f = r x - x^r \quad (D)$$

$$f' = r - r x^{r-1} = 0 \quad x = \pm 1$$



$$x = -1 \rightarrow y = -r \quad \text{min} \quad x = \sqrt{r} \rightarrow y = 0 \quad \text{min} \quad (-1, -r) \text{ نقطة}$$

$$f(-1) = 1 \rightarrow y = 1 + r a + b = 1 \quad r a + b = 0 \quad (4)$$

$$f'(-1) = 0 \quad f' = -r x^{r-1} + r a x \rightarrow -r - r a = 0$$

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

$$b = \frac{r}{r}$$

$$\frac{b}{a} = -r$$

$$f = \frac{r}{r} x^r + x + \frac{1}{r} \rightarrow f' = r x + 1 = 0 \quad x = \frac{-1}{r} \quad y = \frac{r}{r} \quad (V)$$

$$y = \frac{a x + r}{(a+1)x + a - 1}$$

$$I \text{ جانب } \rightarrow x = \frac{1-a}{a+1} = \frac{-1}{r}$$

$$II \text{ جانب } \rightarrow y = \frac{a}{a+1} = \frac{r}{r} \Rightarrow a = r$$

$$y = \frac{r x + r}{r x + 1} = 0$$

$$x = \frac{-r}{r} \quad \text{نقطة التقاط } (0, \frac{r}{r})$$

$$\text{كسب } x = \frac{-1}{r} \Rightarrow \text{مخرج} = \epsilon \left(x + \frac{1}{r}\right)^r = \epsilon x^r + \epsilon x + 1 \quad (\wedge)$$

$$\Rightarrow a = \epsilon$$

$$\lim_{x \rightarrow \infty} f(x) = r = \frac{b x^r}{\epsilon x^r}$$

$$b = 1r$$

$$\frac{b}{a} = r$$

$$f' = \frac{\varepsilon x^{\mu} (x^{\mu} - 1) - \mu x^{\mu} (x^{\varepsilon})}{(x^{\mu} - 1)^{\mu}} = \frac{x^{\varepsilon} - \mu x^{\mu}}{(x^{\mu} - 1)^{\mu}} \quad (9)$$

x		0	2	$\sqrt[3]{32}$	
y'	$+$	0	$-$	$-$	$+$

$$D_f = \mathbb{R} - \{2\}$$

تابع در $(2, \sqrt[3]{32}] \cup (0, 2)$ ابتدا نزولی است -

نقطه برگشت طول بازه $= 2 - \sqrt[3]{32}$

طول بازه $= 2$

طول بازه ≈ 1.17

$$D_f = \mathbb{R} - \{\pm \sqrt{15}\}$$

(10)

$$f' = \frac{\varepsilon x^{\mu} (x^{\mu} - \mu) - \mu x (x^{\varepsilon} - \mu)}{(x^{\mu} - \mu)^{\mu}} = \frac{\mu x (x^{\varepsilon} - 4x^{\mu} + \mu)}{(x^{\mu} - \mu)^{\mu}}$$

$$x^{\varepsilon} - 4x^{\mu} + \mu = 0 \quad x^{\mu} = \frac{4 \pm \sqrt{16}}{2} = 2 \pm \sqrt{4} \quad x = \pm \sqrt[2]{2 \pm \sqrt{4}}$$

x	$-\sqrt{2+\sqrt{4}}$	$-\sqrt{2}$	$-\sqrt{2-\sqrt{4}}$	0	$\sqrt{2-\sqrt{4}}$	$\sqrt{2}$	$\sqrt{2+\sqrt{4}}$
y'	$-$	$+$	$+$	0	$-$	$-$	$+$

$$(-2, 2)$$

در این بازه، ابتدا نزولی داریم

$$[-\sqrt{2-\sqrt{4}}, 0] \cup [\sqrt{2-\sqrt{4}}, \sqrt{2}) \cup (\sqrt{2}, 2)$$