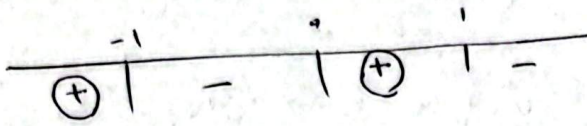


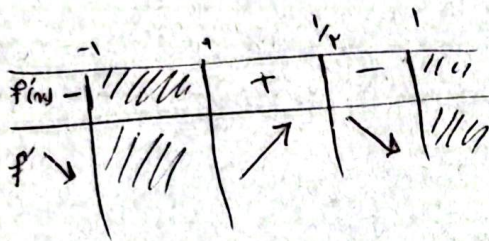
$x(1-|x|) \rightarrow$   $0/1/-1$  ①



جواب های مثبت  
مابعد قبول است  
حسب زیر را در جواب زود  
زوج همواره (+) است

$$f(x) \begin{cases} \sqrt{x(1-x)} & 0 \leq x \leq 1 \\ \sqrt{x(x+1)} & x \leq -1 \end{cases} \rightarrow f'(x) = \begin{cases} \frac{1-2x}{2\sqrt{x-x^2}} & 0 < x < 1 \\ \frac{x+1}{2\sqrt{x^2+x}} & x < -1 \end{cases}$$

\* نبرای تقاطع بحرانی  $\{0, \frac{1}{2}, 1, -1\}$



\* تابع دارای یک نقطه ماکسیمی (M) \* تابع ماکسیمی نیست (N)

\* دارای یک نقطه بحرانی (K)

$m+n+k=9 \rightarrow 1+0+k=9 \rightarrow k=8$  جواب ②

$f(x) = \sqrt{x} + \sqrt{a-x} \rightarrow \begin{cases} x \geq 0 \\ x \leq \frac{a}{2} \end{cases} \Rightarrow D_f = [0, \frac{a}{2}]$  ②

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

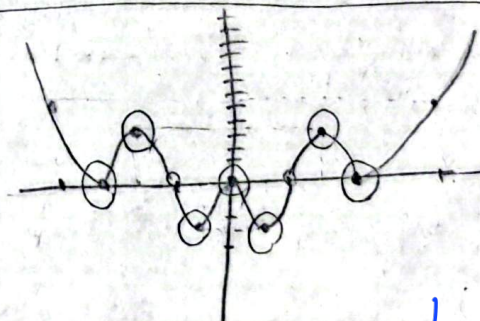
$f(0) = \sqrt{a} / f(\frac{a}{2}) = 2\sqrt{\frac{a}{2}} / f(\frac{a}{2}) = \sqrt{\frac{a}{2}}$

min, max  $\rightarrow 2\sqrt{\frac{a}{2}} \times \sqrt{\frac{a}{2}} = \sqrt{2} \rightarrow \frac{2a}{\sqrt{2}} = \sqrt{2} \rightarrow 2a = 2 \rightarrow a = 1$  جواب ③

$f(x) = \frac{x^2}{x^2-1} |x^2-1|$

$\pm 2$   $\rightarrow$   $x = \pm 2$

$\frac{x^2 - 2x^2}{x^2 - 1}$	$\frac{-x^2 + 2x^2}{x^2 - 1}$	$\frac{x^2 - 2x^2}{x^2 - 1}$
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④ استریم نیست

1.1.20

نقطه  $x = \pm 2$  (ریشه دوم) و  $x = 0$   $f'(x) = 0$

$$y = am^m + bn^r + cn + d$$

(K)

$$|A| \rightarrow 0 + 0 + 0 + d \rightarrow \boxed{d = 0}$$

$$|B| \rightarrow |a + b + c + 0| \rightarrow \boxed{a + b + c = 1}$$

$$\rightarrow a - \frac{3}{4}a = 1 \rightarrow -\frac{1}{4}a = 1$$

$$y' = 3am^r + rbn + c = 0$$

$$\boxed{a = -4}$$

(2)

$$|C| \rightarrow 0 + 0 + c = 0 \rightarrow \boxed{c = 0}$$

$$|D| \rightarrow 3a + rbn + c = 0 \rightarrow \frac{3}{4}a = -b \rightarrow \boxed{b = 3}$$

$$ab = ? \rightarrow 3 \times (-4) = \boxed{-12}$$

115 و 3 بجائز ہند چون ابتدا انتہی بازہ ہند

(K)

$$f(x) = 3x - x^3 \rightarrow f'(x) = 3 - 3x^2 = 0 \rightarrow 3 = 3x^2 \rightarrow x^2 = 1 \rightarrow x = \pm 1$$

چون بازہ  $[-1, \sqrt{3}]$  ہر دوہند پر ہر دوہند پر ہند

$$f(-1) = -\frac{3}{4} |3 - 2(1)| = -\frac{9}{4}$$

$$f(-1) = -1 |3 - 1| = -2 \rightarrow \text{min value} \rightarrow \boxed{-2}$$

$$f(1) = |3 - 1| = 2$$

$$f(\sqrt{3}) = \sqrt{3} |3 - 3| = 0$$

$$y = x^n |n| + 3am^r + b \xrightarrow{x=1} 1 + 3a + b = 1 \rightarrow \boxed{3a = -b}$$

(4)

$$y = x^n + 4an \rightarrow 3x^n + 4a = 0 \rightarrow 3 = -4a \rightarrow \boxed{a = -\frac{3}{4}}$$

(2)

$$-\frac{3}{4} = -b \rightarrow \boxed{b = \frac{3}{4}}$$

$$\frac{b}{a} = ? \rightarrow \frac{\frac{3}{4}}{-\frac{3}{4}} = \boxed{-1}$$

$$f(x) = \frac{3}{4}x^2 + x + \frac{8}{9} \rightarrow f'(x) = \frac{3}{2}x + 1 = 0 \rightarrow x = -\frac{2}{3}$$

(7)

$$g(x) = \frac{ax + 3}{(a+1)x + (a-1)} \rightarrow y = \frac{a}{a+1} \quad (x \text{ کی قیمت}) \quad g = \frac{1-a}{a+1} \quad (y \text{ کی قیمت})$$

$$\text{نقطہ پر } \left( \frac{1-a}{a+1}, \frac{a}{a+1} \right)$$

$$f\left(-\frac{2}{3}\right) = \frac{3}{4} \times \frac{4}{9} - \frac{2}{3} + \frac{8}{9} = \frac{2}{9} = \frac{2}{9} \Rightarrow \left(-\frac{2}{3}, \frac{2}{9}\right)$$

(2)

$$\rightarrow \frac{1-a}{a+1} = -\frac{2}{3} \rightarrow -a - 1 = 2a - 2a \rightarrow 3a = 1 \rightarrow a = \frac{1}{3}$$

$$g(x) = \frac{3x + 3}{3x + 1} \xrightarrow{y=1} \frac{3x + 3}{3x + 1} = 1 \rightarrow \boxed{x = -\frac{2}{3}}$$

$$y = \frac{bx^r + v}{kx^r + ax + 1} \xrightarrow{(-\frac{1}{k}, r)} n = -\frac{1}{k} \quad y = x^n \quad (2)$$

(1)

$$\left. \begin{aligned} \frac{b}{k} = y &\rightarrow \frac{b}{k} = x^r \rightarrow b = kx^r \\ k(\frac{1}{k}) - \frac{a}{k} + 1 = 0 &\rightarrow \frac{a}{k} = r \rightarrow a = kr \end{aligned} \right\} \rightarrow \frac{b}{k} = \frac{kr}{k} = r \quad \text{جواب}$$

$$f(n) = \frac{x^r}{n^r - 1} \rightarrow f'(n) = \frac{kx^r(n^r - 1) - (kn^r)(n^r)}{(n^r - 1)^2}$$

(4)

$$\frac{x^r - rx^{r-1}}{(n^r - 1)^2} \rightarrow \frac{x^r(n^r - r)}{(n^r - 1)^2} \rightarrow n^r = rx \rightarrow n = \sqrt[r]{rx}$$

n	0	(2)	$\sqrt[r]{rx}$
f'(n)	+	-	-
f(n)	↗	↘	↘

بعض درجه های (0, r) بر طول  $r = 0 = r$  درجه های  $(r, \sqrt[r]{rx})$  درجه های  $r(\sqrt[r]{rx} - 1)$  است. درجه های  $r(\sqrt[r]{rx} - 1)$  است. جواب  $r(\sqrt[r]{rx} - 1)$

$$f(n) = \frac{ax^r - c}{n^r - r} \rightarrow f'(n) = \frac{kx^r(n^r - r) - (rkn)(n^r - c)}{(n^r - r)^2}$$

(b)

$$\rightarrow \frac{kx^r - rkn}{(n^r - r)^2} \rightarrow \frac{rx^r - rkn}{(n^r - r)^2} = \frac{rx(n^r - 1)(n^r - c)}{(n^r - r)^2} \rightarrow n = \pm \sqrt[r]{rx}$$

n	-r	$-\sqrt[r]{rx}$	$-\sqrt[r]{rx}$	-1	0	1	$\sqrt[r]{rx}$	$\sqrt[r]{rx}$	r
f'	///	-	+	+	-	+	-	-	+
f	///	↘	↗	↗	↘	↗	↘	↘	↗

بعض درجه های  $(-1, 0) / (1 - r, \sqrt[r]{rx})$  است. بعض درجه های  $(\sqrt[r]{rx}, \sqrt[r]{rx}) / (1, \sqrt[r]{rx})$  است.

$$f'(n) = \frac{kx^r(n^r - r) - rkn(n^r - c)}{(n^r - r)^2} = \frac{rx(n^r - 1)(n^r - c)}{(n^r - r)^2}$$

$$kx^r - rkn = 0 \rightarrow kx^r(1 - rn) = 0 \rightarrow \{x = 0\}$$

$$\rightarrow x^r - rn = 0 \rightarrow x^r = rn \rightarrow x^r = r \cdot \frac{x^r}{r} \rightarrow x^r = \frac{r^2 \sqrt[r]{rx}}{r} = r \sqrt[r]{rx} \rightarrow \begin{cases} x = \pm \sqrt[r]{r \sqrt[r]{rx}} \\ x = \pm \sqrt[r]{r + \sqrt[r]{rx}} \end{cases}$$

x	$-\sqrt[r]{rx}$	$-\sqrt[r]{r \sqrt[r]{rx}}$	0	$\sqrt[r]{r \sqrt[r]{rx}}$	$\sqrt[r]{rx}$
y'	-	+	+	-	+

درجه های  $(\sqrt[r]{r \sqrt[r]{rx}}, \sqrt[r]{rx})$