

نام و نام خانوادگی ..... شماره ۲۴ کلاس ..... ریاضی دوم (خبرنامه)

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

$D_f = (-\infty, -\frac{1}{2}] \cup [0, 1]$   $\int \frac{1}{x} = \ln|x| + C$   $\rightarrow \frac{1}{x}$  (مان)  $\textcircled{1}$   
 $m+n+k \leq a$   $\checkmark$   $\left\{ 0, \pm 1, \frac{1}{x} \right\}$   $k=k$   $\left( \frac{1}{x} \right) \begin{matrix} 1 = m \\ 0 = n \end{matrix}$

$$f'(x) = \frac{1}{\sqrt{x}} + \frac{-1}{\sqrt{a-x}} = 0 \rightarrow \frac{\sqrt{a-x} - \sqrt{x}}{\sqrt{x}\sqrt{a-x}} = 0 \rightarrow x \leq 0 \leq \frac{a}{4} \leq \frac{a}{4}$$

$$f\left(\frac{a}{4}\right) = \sqrt{\frac{a}{4}}, f\left(\frac{a}{4}\right) = \sqrt{\frac{a}{4}}, f(0) = \sqrt{a}$$

$\int \frac{1}{x} = \ln|x| + C$   $\rightarrow \frac{a^2}{4} > 12 \rightarrow$   
 $a^2 \geq 48 \rightarrow a \geq \sqrt{48}$   
 $a \in \mathbb{R} \rightarrow [a] \leq \mathbb{R} \checkmark$   $\textcircled{2}$

$$\frac{x^2}{x^2-1} |x^2-1| \xrightarrow{\text{مخرج}} \frac{x^2 - 2x^2}{x^2-1} \xrightarrow{\text{صورت}} \frac{(x^2-1)(x^2-1) - (x^2)(x^2-1)}{(x^2-1)^2} = 0$$

$$\frac{x^2 - 2x^2 + 1}{(x^2-1)^2} = 0 \rightarrow x(x^2 - 2x^2 + 1) = 0 \rightarrow x > 0$$

(نقطه)  $\{ -2, 0, 2 \}$   $\rightarrow$   $\textcircled{3}$

$$\begin{aligned} \text{مان}^r + 2bx + c &\xrightarrow{(1,0)} c = 0 \\ &\xrightarrow{(1,0)} 2a + 2b = 0 \\ cn^r + bn^r + cn + d &\xrightarrow{(2,0)} d = 0 \\ &\xrightarrow{(2,1)} a + b = 1 \end{aligned} \rightarrow a = -2, b = 2 \checkmark \textcircled{4}$$

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

جدول علامت:  $\begin{matrix} & -\frac{1}{2} & 1 & \sqrt{2} \\ \downarrow & & & \\ \downarrow & - & + & - \\ \downarrow & & & \end{matrix}$   $f\left(\frac{1}{2}\right) = \frac{1}{2}$   $f(-1) = -2$   $f(1) = 2$   $f(\sqrt{2}) = 0$   
 $\textcircled{5}$

$$y = -x^2 + 2ax^2 + b \rightarrow y' = -2x + 4ax$$

در این نقطه دشتن کردیم شیب است صفر را میسریم:

$$\underline{(-1, 0)} \rightarrow -2 - 4a = 0 \rightarrow 4a = -2 \rightarrow a = -\frac{1}{2}$$

$$* J: (-1, 1) = 1 + \frac{2a}{-1} + b = 1 \rightarrow b = \frac{2}{-1}$$

$$\left. \begin{array}{l} \\ \\ \end{array} \right\} \rightarrow \frac{b}{a} = \frac{2}{-1} \quad (2)$$

$$\left( \min \left( \frac{-b}{2a}, \frac{-A}{2a} \right) \rightarrow \delta \left( \frac{-1}{-2}, \frac{2}{-2} \right) \right)$$

عمیق است ← عمیق است ←

$$\frac{a}{a} = \frac{2}{-2} \rightarrow a = 2 \rightarrow \frac{2x + 2}{2x + 1} = 0 \rightarrow x = -\frac{2}{2} \quad (2)$$

$$A \left( \frac{-1}{-2}, 2 \right)$$

عمیق است ← عمیق است ←

$$2 \left( \frac{-1}{-2} \right)^2 + a \left( \frac{-1}{-2} \right) + 1 = 0 \rightarrow \frac{-a}{-2} = -2 \rightarrow a = 4$$

$$\frac{b}{2} = 2 \rightarrow b = 4$$

$$\frac{b}{a} = 2 \quad \checkmark \quad (2)$$

$$f'(x) = \frac{(x^2-1)(4x^2) - (4x^2)(2x)}{(x^2-1)^2} = \frac{x^2(x^2-2)}{(x^2-1)^2} \leq 0 \rightarrow$$

	0	*	2	* $\sqrt{4}$
f'	+	-	-	+
f	↗	↘	↘	↗

نقطه سرج ←

$$\text{طول فاصله بین بازه} = \sqrt{4} - 2 \quad \checkmark \quad (2)$$

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

	-2	* $\sqrt{3}$	0	* $\sqrt{3}$	2
f'	-	-	+	-	+
f	↘	↘	↗	↘	↗

دسته بازه هیچ اکیدا تری است.  $\checkmark \quad (2)$