

۱۸۱۷۵

$x > 0 \rightarrow \sqrt{-x^2+x} \rightarrow \frac{-2x+1}{2\sqrt{-x^2+x}} \rightarrow \frac{1}{2} > 0 \rightarrow 1$
 نقطه بحرانی
 $x < 0 \rightarrow \sqrt{x^2+x} \rightarrow \frac{2x+1}{2\sqrt{x^2+x}} \rightarrow -\frac{1}{2} < -1$

۱۵

$x = \frac{1}{2} \rightarrow y = \frac{1}{2}$
 $x = -\frac{1}{2} \rightarrow y = -\frac{3}{2}$
 $\frac{1}{2} - \frac{3}{2} + 0 = \sqrt{1}$

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

$\sqrt{\frac{a}{2}} = \min \rightarrow \frac{2\sqrt{a}}{\sqrt{2}} = \max \rightarrow \sqrt{\frac{a}{2}} \times \frac{2\sqrt{a}}{\sqrt{2}} = \sqrt{2} \left\{ a=2 \right\}$

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

$\frac{-2x}{(x^2-1)^2} + \frac{2x \times x^2}{x^2-1} = \frac{-2x + (2x)(x^2)(x^2-1)^2}{(x^2-1)^2} = \frac{2x(-1 + x^2(x^2-1)^2)}{x^2-1}$

$\left\{ \text{نقطه} \right\} x = \pm 2 \rightarrow 0 = x$

$A(0,0) \quad a=0 \quad 2a+3b=2 \quad a=-2$
 $B(1,1) \quad c=0 \quad 3a+2b=0 \quad b=2$
 $\left\{ ab = -4 \right\}$

۲

$-x^3+3x=0$
 $-x^2+3=0$
 $-x^2+1=0$
 $x = \pm 1$

$\frac{-x^3}{-1} + 1 - 1 \frac{3x}{1}$
 $x = -1 \rightarrow y = -2$
 $\left\{ \text{min} \right\}$

$$y = x^2/x + 3ax^2 + b \quad A(-1, 1) \quad 1 + 3a + b = 1 \quad 3a + b = 0$$

در انتگرال منتهی \rightarrow منتهی $= 0$

$$x > 0 \rightarrow x^2 + 3ax^2 + b$$

$$x < 0 \rightarrow -x^2 + 3ax^2 + b \xrightarrow{\text{منتهی}} -3x^2 + 4ax = 0 \rightarrow 3 - 4a = 0 \quad \left| a = \frac{3}{4} \right|$$

$$3x \frac{1}{4} + b = 0 \quad -\frac{3}{4} = b \quad \frac{b}{a} = \frac{-\frac{3}{4}}{\frac{3}{4}} = \boxed{-1} \quad \text{پ}$$

$$y = \frac{(ax + 3)}{(a+1)x - (a-1)} \quad x \rightarrow \text{مجاوب منتهی} = \frac{a}{c} \rightarrow \frac{a}{a+1} \quad \left(\frac{a}{a+1}, \frac{a-1}{a+1} \right)$$

$$\text{مجاوب منتهی} \rightarrow \frac{a-1}{a+1}$$

$$y = \frac{3}{4}x^2 + x + \frac{0}{4} \xrightarrow{\text{منتهی}} 3x + 1 = 0 \rightarrow x = -\frac{1}{3}$$

$$\frac{a}{a+1} = -\frac{1}{4}$$

$$3a = -a - 1$$

$$4a = -1$$

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

$$\frac{-\frac{x}{4} + 3}{\frac{3}{4}x + \frac{0}{4}} = \frac{-x + 12}{3x + 0} = 0 \quad -x + 12 = 0 \quad \left| x = 12 \right|$$

1, 1/5

$$A\left(-\frac{1}{4}, 3\right) \quad -\frac{1}{4} = \frac{b}{3} \rightarrow b = -\frac{3}{4}$$

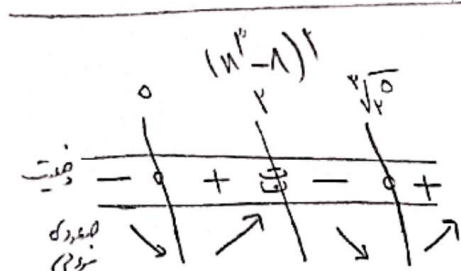
$$(3x^2) + (3a) + 1 = 0 \quad 3x^2 + 3a = 0 \quad a = -\frac{3x^2}{3}$$

$$\frac{b}{a} = \frac{-\frac{3}{4}}{-\frac{3x^2}{3}} = \frac{1}{x^2}$$

1, 3

$$\frac{x^2}{x^2 - 1} \xrightarrow{\text{منتهی}} \frac{(3x^2)(x^2 - 1) - (1x^2)(x^2)}{(x^2 - 1)^2} = \frac{3x^4 - 3x^2 - x^4}{(x^2 - 1)^2} = \frac{2x^4 - 3x^2}{(x^2 - 1)^2}$$

$$\frac{x^2(x^2 - 3)}{(x^2 - 1)^2}$$

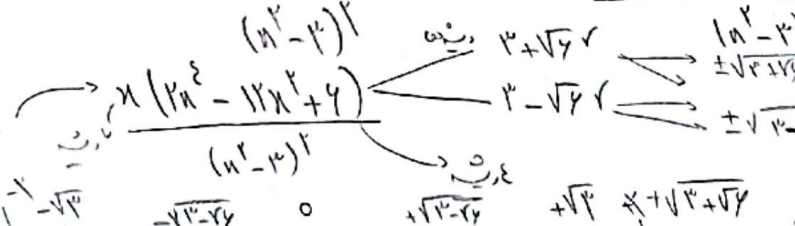


$$\min_{\text{نقطه سرج}} = \left(\sqrt{3}, \frac{2}{\sqrt{3}} \right)$$

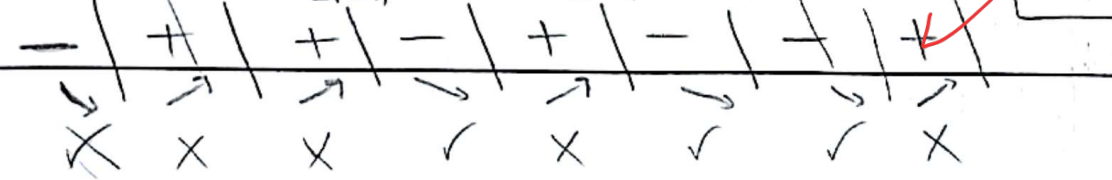
$$= 2\sqrt{3} - 2 = 2(\sqrt{3} - 1)$$

$$\frac{x^2 - 3}{x^2 - 3} \xrightarrow{\text{منتهی}} \frac{(3x^2)(x^2 - 3) - (1x^2)(x^2 - 3)}{(x^2 - 3)^2} = \frac{3x^4 - 9x^2 - x^4 + 3x^2}{(x^2 - 3)^2} = \frac{2x^4 - 6x^2}{(x^2 - 3)^2}$$

$$2x^4 - 6x^2 + 4x$$



$$\left(\sqrt{3}, \frac{2}{\sqrt{3}} \right)$$



صحن A معین افقی $y = 3$ و معین قائم $y = -\frac{1}{3}$ است و معین قائم $y = 1$ می باشد

$$f\left(-\frac{1}{3}\right)^2 + a\left(-\frac{1}{3}\right) + 1 = 0 \rightarrow \frac{1}{9}a = 2 \rightarrow a = 2$$

$$\lim_{n \rightarrow \infty} \frac{bn^2 + v}{\epsilon_n^2 + an + v} = \frac{b}{2} = 3 \rightarrow b = 12$$

$$\left. \begin{array}{l} a = 2 \\ b = 12 \end{array} \right\} \frac{b}{a} = 6$$

$$x(1 - |x|) \geq 0 \rightarrow D_f = (-\infty, -1] \cup [0, 1]$$

$$f'(x) = \frac{1 - 2|x|}{2\sqrt{x(1-|x|)}} \rightarrow |x| = \frac{1}{2} \rightarrow x = \frac{1}{2} \quad (x = -\frac{1}{2} \text{ در دامنه نیست})$$

x	$\frac{1}{2}$	
y'	+	-
y	\uparrow	\downarrow

\max

$n=0$
 $m=1$

$$m + n + k = 4 + 1 = 5$$

نقاط 0، 1 و $\frac{1}{2}$ بهتری $k=4$

$$x_{\min} = -\frac{b}{2a} = -\frac{1}{2\left(\frac{2}{3}\right)} = -\frac{1}{4}$$

معین قائم $= -\frac{d}{c} = \frac{1-a}{1+a} = -\frac{1}{4} \rightarrow 4 - 4a = -1 - a \rightarrow 4a = 5 \rightarrow a = \frac{5}{4}$

$$y = \frac{2n + 3}{3n + 1} \rightarrow y = 0 \rightarrow x = -\frac{3}{2}$$