

$$f(m) = 1 - \frac{a}{n} \quad [1, \infty] \quad a \neq 0$$

۱۳، ۲۵

$$n = \pm \sqrt{\frac{a}{a}}$$

۱، ۵۵

$$\frac{f(r) - f(1)}{r-1} = \frac{1 - \frac{a}{r} - 1 + a}{r} = \frac{a}{r} \quad \text{مقدار متوسطی در بازه ی [۱، r] نسبت به n = \sqrt{a} قابل قبول}$$

$$f'(m) = \frac{a}{m^2} \quad \frac{a}{r} = \frac{a}{m^2} \rightarrow m^2 = r \rightarrow m = \pm \sqrt{r}$$

$$y = r \tan^2 \theta - \sin \theta + 1 \quad A \quad a = ?$$

$$r \tan^2 \theta - \sin \theta + 1 = a \quad r \tan^2 \theta - \sin \theta + 1 = 0 \quad r \tan^2 \theta - 1 = -\sin \theta \rightarrow a = \frac{1}{r}$$

$$\rightarrow a = \pm \frac{1}{r} \quad a = +\frac{1}{r} \quad a = -\frac{1}{r} \quad a = -\frac{1}{r}$$

$$y = n^2 - 12n + 7 \rightarrow y' = 2n - 12 = 0 \quad (n^2 - 12n + 7) = (n-6)^2 - 29$$

$$n^2 - 12n + 7 = 1 - 12n + 7 = -12n + 8 = -12 \quad -12 \quad \begin{matrix} - & + \\ + & - \\ + & - \end{matrix}$$

$$y = n^2 + an^2 - 5bn - 8 \quad \text{التماسی}$$

$$2n^2 + 5an^2 - 5b \rightarrow n=0 \rightarrow y=0 \rightarrow b=0$$

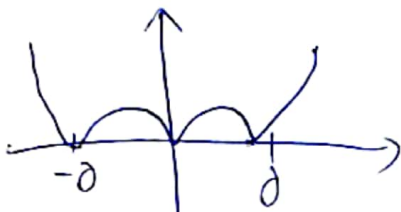
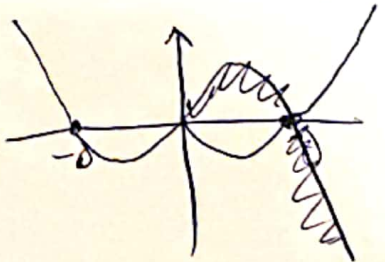
$$2n^2 + 5an^2 - 5b \rightarrow n=-r \rightarrow y=0 \rightarrow 12 - 5a = 0 \rightarrow a = \frac{12}{5}$$

$$y = n^2 + 2n^2 - 8 \rightarrow y(0) = -8 \rightarrow (0, -8) \quad y(-2) = 0 \rightarrow (-2, 0)$$

$$d = \sqrt{r} = 2\sqrt{5}$$

$$f(m) = m^2 - d|m| \quad m \rightarrow \max \quad n \rightarrow \min$$

$$y = |f(m)| \quad \frac{n}{m} = ?$$



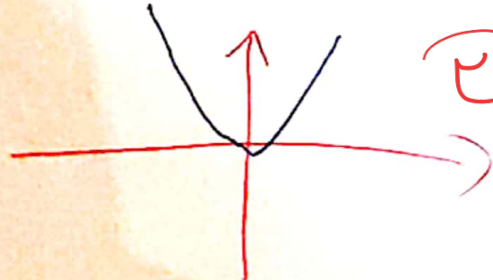
$$n = r \quad m = r \quad \frac{n}{m} = 1, 0$$

$$y = |f(m)| \quad f(m) = m(|m| + c)$$

$$n^2 + 2n \quad n \geq 0$$

$$n^2 - 2n \quad n < 0$$

نقطه بحرانی = ؟



نقطه بحرانی

✓ 7

$$x \in [0, a] \rightarrow |x-a| = -(x-a) \rightsquigarrow f(x) = -\sqrt[3]{x^2(x-a)}$$

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

$$-\frac{1}{3}x^{-\frac{1}{3}}(2x - a) \rightsquigarrow f'(x) \rightarrow x=0$$

$$\hookrightarrow x = \frac{2a}{3} \checkmark \text{ max} \rightarrow f(\frac{2a}{3}) = 1.5$$

$$\sqrt[3]{\frac{2a}{3}} \left| \frac{2a}{3} - a \right| = \frac{3}{4} \rightsquigarrow a^{\frac{3}{4}} \times \frac{2a^{\frac{1}{4}}}{3} = \frac{1.25}{1} \rightsquigarrow a^{\frac{4}{4}} = \frac{2.5}{3} \rightarrow \boxed{a = 2.5}$$

$$y = x|x| - x \begin{cases} x^2 - x & x > 0 \\ -x^2 - x & x \leq 0 \end{cases}$$

منیم سببی
(n=0)

نقطه 1/0



نقطه Max سببی
(m=1)

نقطه Min سببی
(k=2)

1 7

$$\frac{k+m}{k-n} = \frac{f+0}{f} = 1$$

$$y = \frac{mm+5}{n-1+m} \quad \text{زودگی (1) و (2)}$$

$$m^2 - m - 5 \rightarrow m^2 - m - 5 \leq 0$$

$$(n-1+m)^2 \rightarrow -1 \leq m \leq 2$$

$$f'(x) < 0 \rightarrow m^2 - m - 2 \leq 0 \rightarrow -1 \leq m \leq 2, m \neq 2 \rightsquigarrow -1 \leq m < 2$$

$$x \rightarrow 1-m \leq 1 \rightarrow m \geq 0$$

$$1, 2 \rightarrow \boxed{m = 0 \leq 1}$$

$$m = -1, 0, 1$$

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دانشجو پسر

بریا جاننا

$$y = \begin{cases} \frac{x}{1-x^2} & x \geq 0 \\ \frac{x}{1+x^2} & x < 0 \end{cases} \quad \rightarrow \text{Dy} = \mathbb{R} - \{1, -1\}$$

$$y' = \begin{cases} \frac{1-x^2+2x^2}{1-x^2} = \frac{1+x^2}{1-x^2} & x > 0 \\ \frac{1+x^2-2x^2}{1-x^2} = \frac{1-x^2}{1+x^2} & x < 0 \end{cases} \rightarrow \boxed{x = -1}$$

تایید $x = 0$ مشتق نپذیرد و مشتق در آن صفر نیست پس تنها یک نقطه ای جایی $x = -1$ دارد.