

①  $f'(c) = f'(1) = \frac{1 - \frac{a}{1}}{1} = -1 + a$

در بازه  $x = -\sqrt{3}$  و  $x = \sqrt{3}$  قرار نگیرد

پس  $x = \sqrt{3}$  تنها قابل قبول است!

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$f'(a) = -a a^{-1} \Rightarrow a a^{-2} \Rightarrow \frac{a}{a^2} = \frac{a}{1} \Rightarrow a^2 = 1 \Rightarrow a = \pm \sqrt{1}$

②  $(x, y) \rightarrow x < 0 \Rightarrow y = 2ax^2 - ax + 1 \Rightarrow a$

$f'(x) = f'(a) - a = m = 1 \Rightarrow \frac{4}{2a} = a$

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$a = -\frac{1}{4}$  جواب

$x = x \times \frac{4x^2}{4x^2} - ax + 1 \times \frac{1}{4x} \geq x \Rightarrow \frac{4x^2}{4x^2} = \frac{4x^2}{x} \Rightarrow x^2 = 9 \Rightarrow x = -3$

③  $y = 3x^2 - 12 \Rightarrow a = 2 \Rightarrow \frac{-2}{2} = \frac{2}{2} \Rightarrow y = 1 - 2 \times 2 + 2 = -14$  خط

④  $y' = 3ax^2 + 2ax - 2b = 0 \Rightarrow a = 0 \rightarrow b = 0$

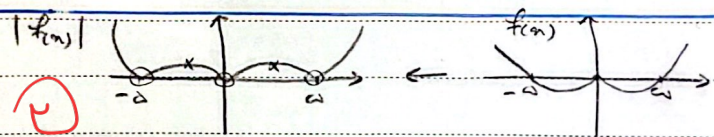
$a = -2, 12 = 4a \Rightarrow a = 3$

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$f(a) = -4 \quad f(-2) = -1 + 12 - 4 = 7 \Rightarrow (a, -4) \quad (-2, 7) \Rightarrow \sqrt{4 + 49} = \sqrt{53}$

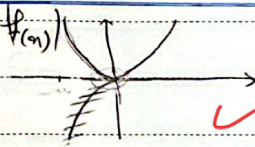
⑤  $f(x) = |x| (|x| - 2)$

$m = 2 \quad n = 3 \Rightarrow \frac{n}{m} = \frac{3}{2}$



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⑥  $f(x) = x(|x| + c) \Rightarrow \begin{cases} x > 0 \rightarrow x^2 + cx \\ x < 0 \rightarrow -x^2 + cx \end{cases}$



که فقط مجزای دارد.

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⑦  $x > a \Rightarrow a^{\frac{x}{c}} (x-a) \Rightarrow a^{\frac{x}{c}} = a x^{\frac{x}{c}} \Rightarrow f'(x) = \frac{a}{c} a^{\frac{x}{c}-1} = \frac{1}{c} a x^{-\frac{1}{c}}$

$\downarrow a^{-\frac{1}{c}} \left( \frac{a}{c} a^{\frac{x}{c}} - \frac{1}{c} a \right) = 0 \Rightarrow a = \frac{1}{a} a$

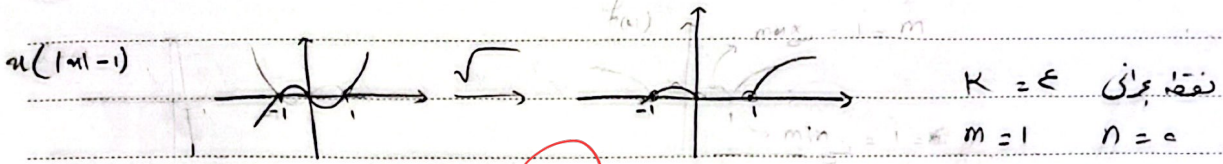
$\frac{1}{c} a = \sqrt{\frac{a}{c}} a^{\frac{x}{c}} \times \frac{1}{c} a \Rightarrow \frac{a}{c} = \sqrt{\frac{a}{c}} a^{\frac{x}{c}} \Rightarrow \frac{1}{c} a^{\frac{1}{2}} = \frac{1}{c} a^{\frac{x}{c}} \Rightarrow a^{\frac{1}{2}} = a^{\frac{x}{c}} = a^1$

$\rightarrow a = \frac{a}{c}$  جواب

Subject:

Year. Month. Date. ( )

①  $f(x) = \sqrt{x|x-1|}$



$\frac{K m + n}{K - n} = \frac{4}{4} = 1$  جواب  $\boxed{1}$

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

I:  $x \geq 1$  (برای  $x \geq 1$ )  
 II:  $x > 0$  (موردی که مثبت است)

I:  $1-m < 1 \Rightarrow 0 < m$   
 II:  $m^2 - m - x < 0$

$-1 < m < x \Rightarrow I \cap II : 0 < m < x$

بسیار در مورد صفر

③  $f(x) = \frac{x}{1-x^2}$

$x > 1 \Rightarrow \frac{x}{1-x^2} \rightarrow f'(x) = \frac{1-x^2 + 2x^2}{(1-x^2)^2} = \frac{1+x^2}{(1-x^2)^2} > 0 \Rightarrow x=1 \notin D_f$

$x < -1 \Rightarrow \frac{x}{1-x^2} \rightarrow f'(x) = \frac{1-x^2 - 2x^2}{(1-x^2)^2} = \frac{1-3x^2}{(1-x^2)^2} \rightarrow 1-3x^2 = 0 \Rightarrow x = \pm \frac{1}{\sqrt{3}} \in D_f$

یک نقطه بحرانی دارد