Subject:
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تمرین زندی — تکلیف شماره ۵ — ۸ نامرها

۱

$1 \to 1-a$

$3 \to 1-\frac{a}{3}$

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

$1-\frac{a}{x}$ → مشتق → $ax^{-2} \to \frac{a}{x^2} = \frac{2a}{3}$ → $x^2 = \frac{3}{2}$ → $x = \pm\sqrt{\frac{3}{2}}$

$1-ax^{-1}$

۲

$4ax-a=1$ → $4ax=4$ → $x=\frac{3}{2a}$

بسیار ناپسند $\gamma = x$

$3x\left(\frac{9}{4a^2}\right) - a\left(\frac{3}{4a}\right) + 18a = \frac{3}{2a}$

$-\frac{4}{2a}$

$\frac{9}{2a} - \frac{3a}{2a} + 18a = \frac{3}{2a}$ → $-\frac{3}{a} + 18a = \frac{3}{2a}$ → $\times 2a$

$-6 + 36a^2 = 3$ → $36a^2 = 9$ → $a^2 = \frac{1}{4}$ → $a = \pm\frac{1}{2}$

$\frac{1}{2}$ غ ق ق

$a = -\frac{1}{2}$

۳

$3x^2 - 12 = 0$ → $3x^2 = 12$ → $x^2 = 4$ → $x = \pm 2$

	-2		2	
	+	−		+

max min

$2 \to 8 - 24 + 2 = 10 - 24 = -14$

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۴) $3x^2+2ax-2b=0$ $\quad x=0 \quad \Rightarrow k=0 \Rightarrow b=0$

$3x^2+2ax=0$ $\quad x(3x+2a)=0$ $\quad -6+2a=0$

$x=0$ یا $3x+2a=0$ $\quad a=3$

$x=-2$

$y=x^3+3x^2-4$ $\quad (0,-4)$ $\quad (-2,0)$

$-8+12-4=0$

$\sqrt{4+16}=\sqrt{20}=2\sqrt{5}$

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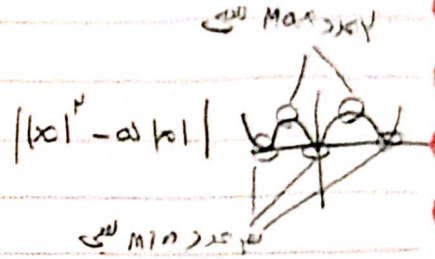
۵) x^2-ax

$y=|x^2-a|x||$

$|x|^2-a|x|$



$\frac{b}{m}=\frac{2}{3}$

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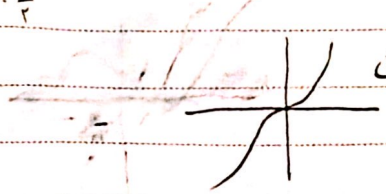
۶) $f(x)=x(|x|+3)$

$-\frac{b}{2a}=\frac{-3}{2}$ $\quad \frac{9}{4}\cdot\frac{1}{2}$

$x\geq 0 \rightarrow x^2+3x$ $\quad 2x+3=0$ $\quad x=-\frac{3}{2}$ $\quad$ غ ق ق

$x<0 \rightarrow -x^2+3x$ $\quad -2x+3=0$ $\quad -2x=-3$ $\quad x=\frac{3}{2}$ غ ق ق

$-\frac{3}{-2}=\frac{3}{2}$



در نقطه صفر برابر خواست بی‌هایی

یک نقطه بحرانی دارد

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۷) $\sqrt[3]{x^2}(a-x) \xrightarrow{\text{مشتق}} \frac{a-x}{\sqrt[3]{x}} + -\sqrt[3]{x^2} = 0$

$a-x = 3x \qquad a = 4x \qquad a \to 0$

$\sqrt[3]{x^2}\,|\underbrace{x-4x}_{-3x}| \Longrightarrow \sqrt[3]{x^2}(3x) = \frac{3}{2} \qquad 3 \times x^{\frac{2}{3}} \times x = \frac{3}{2}$

$x \geq 0$

$x \times x^{\frac{a}{4}} = x^{\frac{3}{2}} \qquad \sqrt[3]{x^a} = \frac{1}{2} \qquad a = 4x$

$4x \mid ? \qquad x = \frac{1}{2}^{\frac{3}{a}}$

$4x = ? \qquad 4 \times 2^{-\frac{3}{a}} = 2^2 \times 2^{-\frac{3}{a}} = 2^{\frac{10-3}{a}} = 2^{\frac{7}{3}}$

۱) $f(x) = \sqrt{x|x|-x}$

$x^2 - x \geq 0 \qquad x(x-1) \geq 0 \qquad +\ 0\ -\ 1\ +$

$x \geq 0 \qquad \sqrt{x^2-x} \to x \geq 1$ ☆ I

$\sqrt{-x^2-x} \to -1 \leq x \leq 0$ II

$-x^2-x \geq 0 \qquad x^2+x \leq 0$

$x(x+1) \leq 0$

$\frac{1}{2}$ ☆ قبول

نقاط بحرانی $\to 0 \;/\; 1 \;/\; -1 \;/\; -\frac{1}{2}$

-1: min نسبی

$m = 0$

$n = 1$

$k = 4$

I مشتق $\to \frac{2x-1}{2\sqrt{x^2-x}} = 0$

$x(x-1)$

$-\frac{1}{2}$ ✓

II مشتق $\to \frac{-2x-1}{2\sqrt{-x^2-x}} = 0$

$-x(x+1)$

$0 \quad -1$

$-1 \quad -\frac{1}{2} \quad 0$

$+\ -\ +\ -$

max نسبی

$\frac{(4x_0)+1}{4-1} = \frac{1}{3}$

P4PCO

1-F(-2)

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$y' = \frac{mx+2}{x+m-1}$ $\quad y' = \frac{m(m-1)-2}{(x+(m-1))^2} < 0$ (9)

$m \neq 2$ $\quad m \neq -1$ $\quad (m-2)(m+1)$

$\frac{m^2-m-2}{(x+(m-1))^2} < 0$

$1-m$

(10)

$x \geq 0$ $\quad \frac{x}{1-x^2}$ $\quad y' \rightarrow$ I $\frac{1(1-x^2)-(-2x^2)}{(1-x^2)^2} = 0$

$x < 0$ $\quad \frac{x}{1+x^2}$ $\quad y' \rightarrow$ II $\frac{1(1+x^2)-2x^2}{(1+x^2)^2} = 0$

I $\rightarrow$ $1-x^2+2x^2=0$ $\quad x^2+1=0$ ✗

II $\rightarrow$ $1+x^2-2x^2=0$ $\quad 1-x^2=0$ $\quad x \rightarrow 1, -1$

بحرانی نیست $\leftarrow$ در نقطه 0

در نقطه 2 $\leftarrow$ -1 و 1