آید انامداری
دوازدهم دختران B
تکلیف ۲۵

۱

$\frac{f(3)-f(1)}{2}$ $\quad \frac{1-\frac{a}{3}-(1-a)}{2}$ $\quad 1-\frac{a}{3}=1+a$

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

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

$x^2=3 \quad x=\pm\sqrt{3}$

۲

$y=x$

$2ax^2-5x+18a=x$

$2ax^2-6x+18a=0$ $\quad 18a$

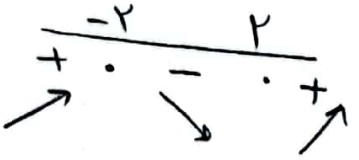
$\Delta=0 \quad 36-4(2a)(18a)=0$

$36=144a^2 \quad a^2=\frac{36}{144}$ $\quad a=\pm\frac{6}{12}$ $\quad a=\pm\frac{1}{2}$

۳

$3x^2-12$

$x^2=4 \quad x=\pm 2$



$f(2)=8-24+2=-14$

۴

$3x^2+2ax-2b=0 \quad b=0$

به ازای $x=0$
$x=-2$

$12-4a=0 \quad a=3$

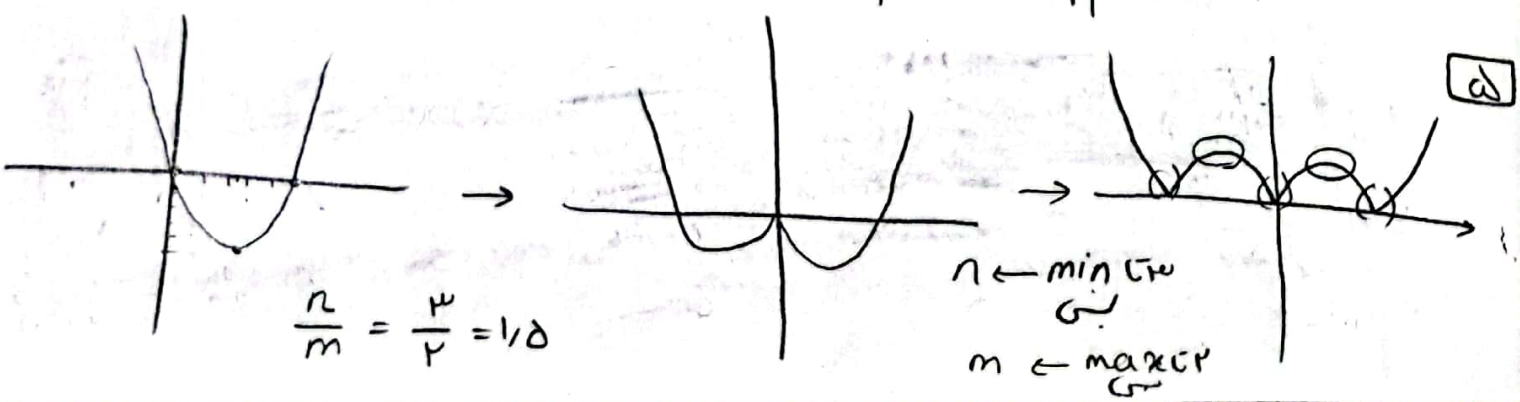
$\int_{-2}^{0} \sqrt{(0-(-2))^2+(-4-0)^2}=2\sqrt{5}$

$\int_{0}^{-2}$

x^3+3x^2-4
$-8+12-4$

۵

$|x^2-5|x||$



$\frac{n}{m}=\frac{3}{2}=1/5$

۶

۲ نقطه بحرانی

$y = |x(|x| + 3x)|$

$x = -1/5$ ✗

$x>0 \to |x^2 + 3x|$

$2x + 3 = 0$

$x^2 + 3x = 0 \quad x(x+3)$ → 0 ✗ , −3 ✗

$x<0 \to |-x^2 + 3x|$

$-x^2 + 3x = 0 \quad -x(x+3) = 0$ → 0 ✓ , −3 ✓

$-2x + 3 = 0 \quad x = 1/5$ ✗

۷

$\sqrt[3]{x^2}\,|x-a| \qquad \sqrt[3]{x^2} \times (-x+a)$

$[0,a]$

$a>0$

$\frac{2x}{3\sqrt[3]{x^4}} \times (-x+a) + (-1)(\sqrt[3]{x^2})$

$3x\sqrt[3]{x}$

$-\sqrt[3]{x^2} \quad a\sqrt[3]{x}$

$\frac{-2x+2a-3x}{3\sqrt[3]{x}} \qquad \frac{-5x+2a}{3\sqrt[3]{x}}$ بحرانی صفر

0 → a

a → 0

$0/4a$ →

$-5x = -2a$

$x = 0/4a$

$\sqrt[3]{\frac{16}{100}a^2} \times \frac{6}{10}a = 1/5$

$\frac{5}{2a} \times \frac{5}{2a} \times \frac{5}{2a} = \frac{16}{100}a^2$

$\frac{30}{12a} = \sqrt[3]{\frac{16}{100}a^2}$

$\frac{15}{6} \quad \frac{5}{2}$

۸

$x>0 \quad \sqrt{x^2 - x} \qquad \frac{2x-1}{2\sqrt{x^2-x}}$

$x(x-1)$

0 1 : + − +

$\frac{1}{2}$ ✗

0 ✓

1 ✓

۴ ← min

$x<0 \quad \sqrt{-x^2 - x} \qquad \frac{-2x-1}{2\sqrt{-x^2-x}}$

$x = -\frac{1}{2}$ ✓

$x = 0$ ✓

-1 ✓

−1		$-\frac{1}{2}$		0		1	
0	+	$\frac{1}{2}$	+	0 ماکزیمم		0	+

$$\frac{mx+2}{x-1+m}$$

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

$$mx - m + m^2 - mx - 2$$

$$\frac{m^2-m-2}{(x-1+m)^2}$$ همواره مثبت

$$m^2-m-2<0$$

-1		2	
$+$	0	$-$	0 $+$

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

	1	
$-$	$\|$	$-$
$\searrow$		$\searrow$

$m=0$ آیا

$$1-f(-2) = \frac{1+2^3}{2} = 2 \quad \frac{1-2^3}{2} = -1$$

$$\frac{x}{1-x^2}$$

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

$$\frac{1-x^2+2x^2}{(1+x^2)^2}$$ فرد $\to \pm 1$

10

$$\frac{x}{1-x|x|}$$

$x>0$

$$\frac{x}{1-x^2}$$

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

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

$x<0$

$$\frac{x}{1+x^2}$$

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

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

$$1+x^2-2x^2$$

11

2 نقطه