

14, 12

پاڻي جي ڪوٽي ۽ ڪوٽي جي ڊگھائي

$$f(m) = 1 - \frac{a}{n} \quad [15^*]$$

(1 سوال)

$$n=1 \rightarrow f(m) = 1 - a$$

$$\text{ڪوٽي جي ڊگھائي} = \frac{(1 - \frac{a}{n}) - (1 - a)}{r} = \frac{a}{n}$$

(1, 12)

$$n=r \rightarrow f(m) = 1 - \frac{a}{r}$$

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

$\begin{cases} x = -\sqrt{r} \\ x = \sqrt{r} \end{cases}$

$$y = r a n^r - a n + 1 n a \quad a=5$$

(1 سوال)

$$r a n^r - a n + 1 n a = 0 \rightarrow r a n^r - a n + n a = 0 \rightarrow a n^r - n + n a = 0$$

$$m=1 \rightarrow y' = \epsilon a n - a \rightarrow \epsilon a n - a = 1 \rightarrow \epsilon a n = 4 \rightarrow n = \frac{4}{\epsilon a}$$

$$* \rightarrow n = \frac{r \pm \sqrt{9 - 4 \epsilon a^2}}{\epsilon a} \rightarrow \frac{r \pm \sqrt{9 - 4 \epsilon a^2}}{\epsilon a} = \frac{r}{\epsilon a}$$

(2)

$$\rightarrow 9 - 4 \epsilon a^2 \geq 0 \rightarrow a^2 \leq \frac{9}{4} \rightarrow a \leq \frac{3}{2} \rightarrow \text{ڪوٽي جي ڊگھائي} \leq \frac{3}{2}$$

$$y = n^r - 1 n + r$$

(1 سوال)

$$y' = r n^{r-1} - 1 \rightarrow r(n-r)(n+r)$$

	-r		r
y'	+	-	+
y	↗	↘	↗
	max	min	

$$n=r \rightarrow y = 1 - r \epsilon + r = -1 \epsilon$$

$$y = n^r + a n^r - r b n - \epsilon$$

(6 سوال)

$$y' = r n^{r-1} + \epsilon a n - r b \rightarrow n=0 \rightarrow -r b = 0 \rightarrow b=0$$

$$\rightarrow n=-r \rightarrow 1 r - \epsilon a = 0 \rightarrow a=r$$

$$\rightarrow y = n^r + r n^r - \epsilon \rightarrow n=0 \rightarrow y = -\epsilon \quad \text{No. 6} = \sqrt{\epsilon + 14} = r \sqrt{14}$$

$$\rightarrow n=-r \rightarrow y = -1 + 1 r - \epsilon = 0$$

پاڻي

(2)

Subject:

Year:

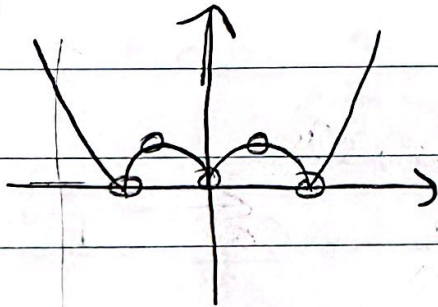
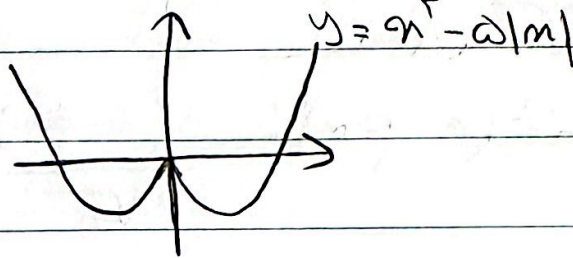
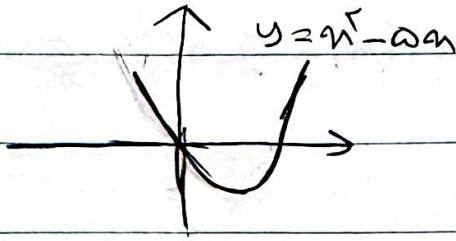
Month:

Date:

$$f(m) = a^m - a|m|$$

(سوال ۱)

$$|f(m)| = |a^m - a|m||$$



تقطعات را جدا کن

(۲)

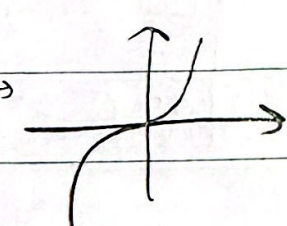
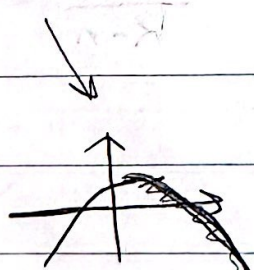
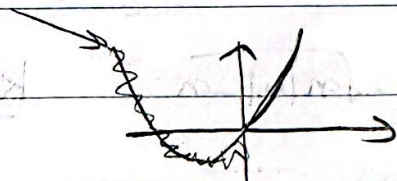
$$m = 2 \quad n = 3 \quad \rightarrow \quad \frac{n}{m} = \frac{3}{2}$$

$$f(m) = a(|m| + k)$$

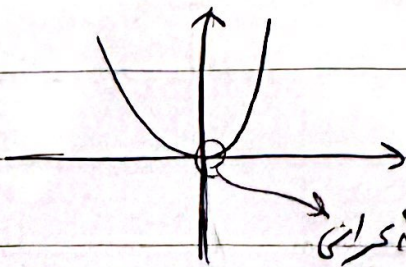
(سوال ۲)

$$a > 0 \rightarrow a^m + km$$

$$a < 0 \rightarrow -a^m + km$$



$$y = |f(m)|$$



تقطعات را جدا کن

✓

(۲)

$f(m) = \sqrt[n]{m} |m-a| \quad a=5$ (سوال ۷)

$0 \leq m \leq a \rightarrow -a \leq m-a \leq 0 \rightarrow |m-a| = a-m$

$f(m) = \sqrt[n]{m} (a-m) \rightarrow a m^{\frac{1}{n}} - m^{\frac{n+1}{n}} \rightarrow f'(m) = \frac{1}{n} a m^{-\frac{n-1}{n}} - \frac{n+1}{n} m^{\frac{1}{n}}$

$\rightarrow \frac{1}{n} a m^{-\frac{n-1}{n}} (a - \frac{n+1}{n} m) = 0 \rightarrow \frac{a^2}{n \sqrt[n]{n}} = 0 \rightarrow \frac{1}{n} a^2 = 0$

$f(0) = f(a) = 0$

$f(\frac{1}{a} a) = 1 \rightarrow \sqrt[n]{(\frac{1}{a})^n} (\frac{1}{a} a) = \frac{1}{a}$ (۲)

$\rightarrow \frac{1}{a^n} \times a = \frac{1}{a^{n-1}} \rightarrow \frac{1}{a^{n-1}} = \frac{1}{a}$

$\rightarrow a^{n-1} = a \rightarrow a^n = a^2 \rightarrow a = \sqrt[n]{a^2}$ ✓

$f(m) = \sqrt[n]{m} |m-1| \quad \frac{km+n}{k-n} = 5$ (سوال ۸)

$m > 0 \rightarrow \sqrt[n]{m} (m-1) \rightarrow \frac{m-1}{m^{\frac{n-1}{n}}} \Rightarrow m \geq 1 \Rightarrow f'(m) = \frac{m-1}{\sqrt[n]{m^2-m}} = 0$

$\rightarrow m = \frac{1}{n}$ (مگر این دو غیر اکثریم)

$m < 0 \rightarrow \sqrt[n]{m} (1-m) \rightarrow \frac{1-m}{\sqrt[n]{m^2-m}} = 0 \rightarrow m = -\frac{1}{n}$

$\rightarrow m = -\frac{1}{n}$ (مگر این دو غیر اکثریم)

$m=1$
 $n=2 \rightarrow \frac{1}{2} = 1$ ✓
 $k=2$

مگر این دو غیر اکثریم
 مگر این دو غیر اکثریم

$$y = \frac{m\alpha + r}{n-1+m} \rightarrow y' = \frac{m^r - m - r}{(n-1+m)^2}$$

(سوال 9)

$$\rightarrow (m-r)(m+1) < 0 \rightarrow \frac{-}{+} \frac{+}{-} \frac{+}{+}$$

نکته: در صورتی که $m < r$ و $m > -1$ باشد $(m-r)(m+1) < 0$ است. ✓

④

$$f(m) = \frac{\alpha}{1-\alpha|m|}$$

(سوال 10)

$$\alpha > 0 \rightarrow \frac{\alpha}{1-\alpha^r} \rightarrow f'(m) = \frac{\alpha^{r+1}}{(1-\alpha^r)^2} \neq 0 \rightarrow 1-\alpha^r \neq 0 \rightarrow \alpha \neq \pm 1$$

$$\rightarrow D_f = \mathbb{R} - \{1\}$$

عقده

①, ②

$$\alpha < 0 \rightarrow \frac{\alpha}{1+\alpha^r} \rightarrow f'(m) = \frac{1-\alpha^r}{(1+\alpha^r)^2} \neq 0 \rightarrow \alpha \neq \pm 1$$

هنگامی که $\alpha < 0$ و $\alpha \neq -1$ باشد

$\alpha = 1$ عقده

$\alpha = -1$ عقده

این نقطه بحرانی است

در نقطه $m=0$ $f(0^+) = f(0^-) = 0$

$f'_+(0) = f'_-(0) = 1$

فقط در نقطه بحرانی

\rightarrow -1 و 1