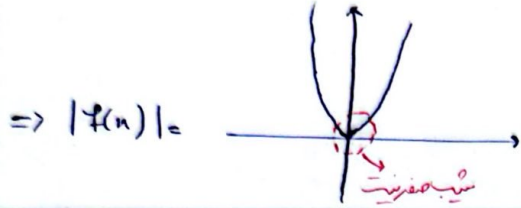
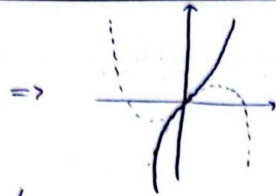


$$f(x) = \begin{cases} x(x+r) & x \geq 0 \\ x(-x+r) & x < 0 \end{cases}$$



باید نقطه کسری را

(2)

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$$f(x) = \sqrt{x^r} |x-a| \quad [0, a] \quad f(x) = -\sqrt{x^r} (x-a)$$

$$f'(x) = \frac{-r x(x-a)}{\mu \sqrt{x^r}} - \sqrt{x^r} \Rightarrow f'(x) = \frac{-\mu x^r + r a x}{\mu \sqrt{x^r}}$$

$$f'(x) = 0 \rightarrow f\left(\frac{a}{2}\right) = \frac{r}{2} \rightarrow \sqrt{\frac{r}{2}} a^{\frac{r}{2}} \left(\frac{a}{2} - a\right) = \frac{r}{2} \rightarrow a x^{\frac{r}{2}} a^{\frac{r}{2}} = \frac{r}{2}$$

$$-r \left(\frac{a}{2}\right) + \mu a = 0$$

$$a = \frac{4}{\mu}$$

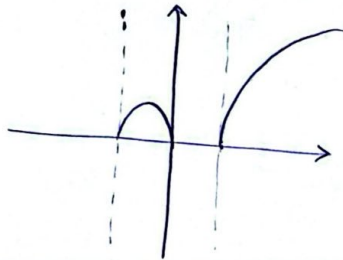
$$\frac{r}{2} a^{\frac{r}{2}} = \frac{r}{2} \rightarrow a^{\frac{r}{2}} = 1 \rightarrow a = 1$$

(1)

7

$$f(x) = \sqrt{x|x|-x} \rightarrow D_f \Rightarrow -x|x|-x \geq 0 \rightarrow x \geq 1 \quad \cup \quad -1 \leq x \leq 0$$

$$f(x) = \begin{cases} \sqrt{x^2-x} & x \geq 1 \\ -\sqrt{x^2-x} & -1 \leq x \leq 0 \end{cases}$$



$$\frac{km+n}{k-n} = \frac{2+0}{2-0} = 1$$

(1, 2)

8

$$y = \frac{mx+r}{x-l+m} \rightarrow y' = \frac{m(x-l+m) - (mx+r)}{(x-l+m)^2} \rightarrow y' = \frac{m^2 - m + r}{(x-l+m)^2}$$

$$m^2 - m + r < 0$$

$$\frac{-1 \quad r}{+ \quad - \quad +} \quad -1 < m < r$$

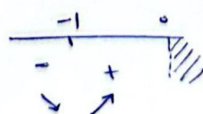
$m \neq 0, 1$
مربع

(2)

9

$$f(x) = \frac{x}{1-|x|} \rightarrow D_f \Rightarrow |x| \neq 1 \quad (x \neq 1) \quad f(x) = \begin{cases} \frac{x}{1-x^2} & x > 0, x \neq 1 \\ \frac{x}{1+x^2} & x < 0 \end{cases}$$

$$\Rightarrow f'(x) = \begin{cases} \frac{x^2+1}{(1-x^2)^2} & x > 0, x \neq 1 \\ \frac{1-x^2}{(1+x^2)^2} & x < 0 \end{cases}$$



$x = -1$ ← باید نقطه کسری

(2)

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