

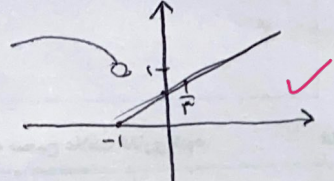
رسم نمودن

14, 5

$$u = \begin{cases} 2y-1 & y \geq 0 \\ -y^2 & y < 0 \end{cases} \rightarrow y \geq 0 \rightarrow 2y-1 \geq -1 \rightarrow y \geq -1 \quad (1)$$

$$y > 1 \rightarrow y > 1 \rightarrow y^2 > 1 \rightarrow -y^2 < -1 \rightarrow u < -1 \quad (2)$$

$$y = \begin{cases} \frac{u+1}{2} & u \geq -1 \\ \sqrt{-u} & u < -1 \end{cases}$$



طبق شکل تابع است

$$y = \frac{u+1}{2} \rightarrow u = 2y-1 \rightarrow 2y = u+1 \rightarrow y = \frac{u+1}{2}$$

$$\sqrt{-u} = y \rightarrow u = -y^2 \rightarrow -u = y^2 \rightarrow y = \pm \sqrt{-u}$$

حالت منفی غیر قابل قبولی چون y باید بزرگتر از یک باشد

$$g(u) = \sqrt{\frac{u f(u-2)}{f(u)}} \rightarrow \frac{u f(u-2)}{f(u)} \geq 0 \quad (2)$$

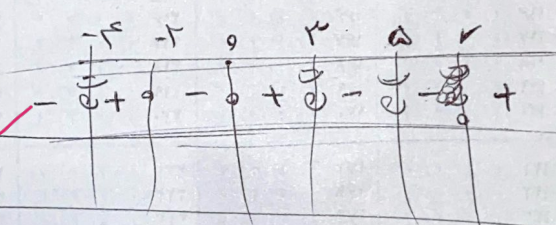
برای رسم $f(u)$ ابتدا دو داله داریم
ست راست مرتب شده رسم شده $f(u-2)$ و $f(u)$ دو داله شیب مثبت

$$f(u) \text{ شیب } + \rightarrow -\infty, 2, \infty$$

$$f(u-2) \rightarrow -\infty, 0, \infty$$

$$D_{f(u-2)} \neq \emptyset$$

$$D_g = (-\infty, -2] \cup [0, 2] \cup [2, +\infty)$$



$$f(u) = \frac{2u^2 - 2u + 2}{u^2 - 4u}$$

$$D_f = ? \rightarrow u^2 - 4u \neq 0 \rightarrow u(u-4) \neq 0 \rightarrow u \neq 0, 4$$

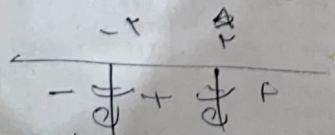
$$D_f = \mathbb{R} - \{0, 4\}$$

$$\sqrt{f(u)} = \sqrt{\frac{2u^2 - 2u + 2}{u^2 - 4u}} \rightarrow \frac{2u^2 - 2u + 2}{u^2 - 4u} \geq 0$$

$$u > 0, \Delta < 0$$

$$D_f = (-\infty, 0) \cup (2, +\infty)$$

$$g(u) = \sqrt{\frac{u f(u-2)}{u f(u)}} \rightarrow \frac{u f(u-2)}{u f(u)} \geq 0$$



$$D_f = (-\infty, +\infty) - \{2\}$$

$$u^2 = + \rightarrow +2 - 2 + -2 = -2$$

$$(2 - \epsilon)(2 + \epsilon) = -\epsilon^2$$

$$y = \frac{2u^2 + 1}{\epsilon - 2[-u]} \rightarrow \epsilon - 2[-u] \neq 0 \rightarrow \epsilon \neq -2[-u] \rightarrow [-u] \neq \frac{\epsilon}{2}$$

$$2u^2 - 2u + 2 \rightarrow -2 \leq 2u^2 - 2$$

$$D_f = \mathbb{R} - (-\infty, 2]$$

الف) $f(x) = \frac{\sqrt{x(x^2-1)}}{|x|+x}$

$x(x^2-1)(x+1) \geq 0$ درسها با دقت - ۵ (۱۵)

$\sqrt{|x|+x}$

$|x|+x \rightarrow x > 0$

$\begin{cases} x=0 \\ x < 0 \end{cases}$

$\rightarrow x > 0$

$\begin{array}{ccc} -1 & 0 & 1 \\ - & + & - \end{array}$

$\begin{cases} x=0 \\ x < 0 \end{cases}$

$\rightarrow D_f = [1, +\infty)$ ✓

ب) $f(x) = \frac{\sqrt{|x-1|-x^2}}{|x|-1}$

$|x|-1 \neq 0$

$|x| \neq 1$

$x \neq \pm 1$ ✓

$|x-1|-x^2 \geq 0$

$x > 0$

$x-x^2 \geq 0$

$\begin{cases} x < 1 \\ x > 1 \end{cases}$

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

$(x+1)(x-1) \geq 0$

$\begin{array}{ccc} -1 & 0 & 1 \\ + & - & + \end{array}$

$D_f = (-\infty, -1] \cup (1, +\infty)$

صفتی آفر...

الف) $g = \sqrt{(x-1)[x-2]}$ $\rightarrow (x-1)[x-2] \geq 0$

$[x-1] = 0 \rightarrow 0.5x-2 \leq 1 \rightarrow 2.5x \leq 3$

$D_g = \mathbb{R}$ ✓

$\begin{array}{ccc} 1 & 2 & 3 \\ + & - & + \end{array}$

ب) $g = \sqrt{|x-1|[x-2]}$

$|x-1|[x-2] \geq 0$

$2.5x \leq 3$

$[2, 3]$

$\begin{array}{ccc} 1 & 2 & 3 \\ - & - & + \end{array}$

$D_g = [2, +\infty) \cup [3, 3]$ ✓

$x \neq 1$

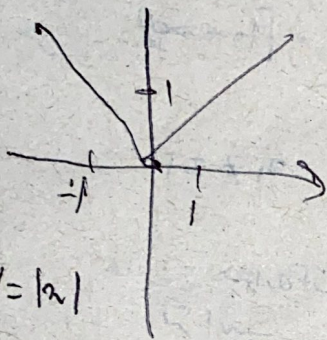
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دیس (مربعی)

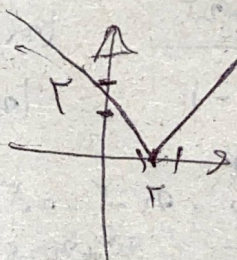
$$y = \frac{1}{|x-2|-1} - k \quad |x-2|-1 \neq k$$

خط $y=k$ کے نمودار $y=|x-2|+1$ کے ساتھ، توجہ سے قطع ہوتا ہے

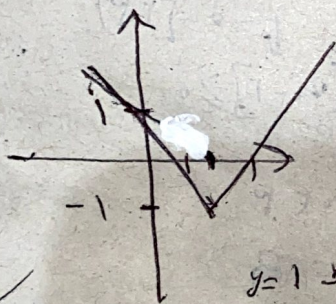


(1) $y = |x|$

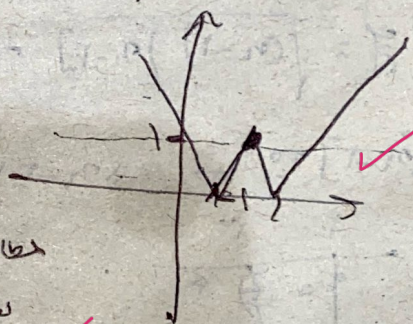
(2) $y = |x-2|$



(3) $y = |x-2|-1$



$y = |x-2|-1$



خط $y=1$ کے ساتھ، توجہ سے قطع ہوتا ہے
 $y = |x-2|-1$ کے ساتھ، توجہ سے قطع ہوتا ہے
 $y = k \rightarrow y = 1 \rightarrow k = 1$

$f(x) = \frac{x^2 + 2x + 1}{x^2 + 2x + 1} \rightarrow \frac{x+1}{x-1} \neq 0 \quad x-1 \neq 0 \rightarrow x \neq 1$ (1)
 $\frac{x+1}{x-1}$
 $x+1 \neq 0 \rightarrow x \neq -1$ (2)

$x^2 + 2x + 1 \neq 0 \rightarrow (x+1)^2 \neq 0 \rightarrow x \neq -1$
 $P_f = \{x - \{-2, -1\}\}$ ✓

$x^2 - 9x + 14 = 0 \rightarrow (x-7)(x-2) = 0 \rightarrow x = 7$ ✓
 کے عبارت کے ساتھ، توجہ سے قطع ہوتا ہے

$y = \sqrt{\frac{x^2 - 2}{x^2 - 2x - 2}}$
 $x^2 - 2x - 2$

درسا صادق

(2) ②

$$y = \log_{a+1} + \log \frac{1}{a} \rightarrow a+1 \neq 1 \rightarrow a \neq 0$$

$$a+1 > 0 \rightarrow a > -1$$

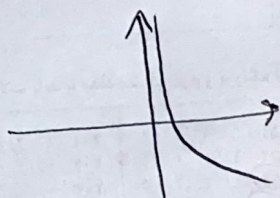
$$\log \frac{1}{a} \rightarrow a > 0$$

$$a \neq 1$$

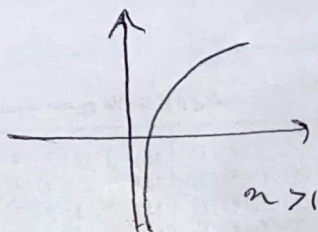
$$\log \frac{1}{a} > 0 \rightarrow$$

من باید سه مقروطیه را
جواب د شود

$$0 < a < 1$$



$$0 < a < 1$$



$$a > 1$$

$$f(x) \rightarrow D_{f(x)} = [-5, 3]$$

(2) ②

$$-5 \leq x^2 - 1 \leq 3 \rightarrow -4 \leq x^2 \leq 4 \rightarrow x^2 \leq 4$$

$$D_f(x^2 - 1) =$$

$$\left[-\frac{2\sqrt{4}}{2}, \frac{2\sqrt{4}}{2} \right] \checkmark$$

$$x^2 \leq \frac{4}{2} \rightarrow \frac{-2}{\sqrt{2}} \leq x \leq \frac{2}{\sqrt{2}} \rightarrow \frac{-2\sqrt{2}}{2} \leq x \leq \frac{2\sqrt{2}}{2}$$

$$1) |x| - 1 \neq 0 \rightarrow |x| \neq 1 \rightarrow x \neq \pm 1$$

ب. 1

$$2) |x-2| - x^2 \geq 0 \rightarrow$$

$-x^2 - x + 2 \geq 0$ $\frac{-2}{-1} \quad \frac{1}{-}$ $-1 \quad + \quad -$	$-x^2 + x - 2 \geq 0$ $\Delta < 0 \quad \times$
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$$D_f = [-2, 1) - \{-1\}$$