

بهره‌بردار

ملاس بازدهی

۲. آترین بیک از بقیه بقیه

۱) $y = \frac{x+3}{x^2+x^2-1}$
 $x^2+x^2-1 = 0$
 $2x^2-1=0$
 $x^2 = \frac{1}{2}$
 $x = \pm \frac{1}{\sqrt{2}}$

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

④ $y = \frac{x+3}{(x-1)(x+3)(x-1)}$
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⑤ $1R - \{ \dots \}$
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⑧ $y = \frac{x+3}{(x-1)(x+1)}$
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ب) $y = \sqrt{\frac{x+3}{x^2+x^2-1}}$
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⑨ $P_f = 1R - \{ \dots \}$
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$y = \frac{x}{x^2-x^2-1}$
 $x^2-x^2-1 = 0$
 $-1=0$

$(x-1)^2 - \omega |x-1| + 1$
 $(|x-1| - 1) (|x-1| - \epsilon) = 0$
 $|x-1| = 1$
 $|x-1| = \epsilon$

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الف) $y = \sqrt{x-3}$
 $x-3 \geq 0$
 $x \geq 3$
 $P_f = (-\infty, 3]$

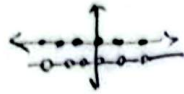
ب) $y = \frac{\omega x^2+4}{[x]^2-2[x]-3}$
 $[x]^2-2[x]-3 = 0$
 $([x]-3)([x]+1) = 0$
 $[x] = 3 \Rightarrow x \notin [3, 4)$
 $[x] = -1 \Rightarrow x \notin [-1, 0)$

$P_f = (-\infty, -1) \cup [0, 3) \cup [4, +\infty)$

د) $y = \sqrt{\left[x - \frac{1}{x}\right] + \left[x + \frac{1}{x}\right]} = \sqrt{\left[x + \frac{1}{x} - 1\right] + \left[x + \frac{1}{x}\right]} = \sqrt{2\left[x + \frac{1}{x}\right] - 1}$ (4)

$2\left[x + \frac{1}{x}\right] \geq 1 \Rightarrow \left[x + \frac{1}{x}\right] \geq \frac{1}{2} \Rightarrow x + \frac{1}{x} \geq \frac{1}{2} \Rightarrow x \geq \frac{1}{x}$

ب) $y = \sqrt{\left[x - \frac{1}{x}\right] + \left[\frac{1}{x} - x\right]} = \sqrt{[a] + [-a]}$



$[a] + [-a] \geq 0$

با توجه به اصل یونسکا

صفر شود در نقطه یونسکا
اگر صحیح

$D_f = \left[\frac{1}{x} + \infty\right)$

$a \in \mathbb{Z} \Rightarrow x - \frac{1}{x} \in \mathbb{Z}$

$\Rightarrow x \in \mathbb{Z} + \frac{1}{x}$

$D_f = \{x \mid x = k + \frac{1}{x}, k \in \mathbb{Z}\}$

الف) $y = \frac{\cot x + 1}{\tan x + 1} = \frac{\frac{\cos x}{\sin x} + 1}{\frac{\sin x}{\cos x} + 1} = \frac{\cos x + \sin x}{\sin x + \cos x} \Rightarrow y = \sqrt{1 - \sin^2 x}$

$1 - \sin^2 x \geq 0$ (1)

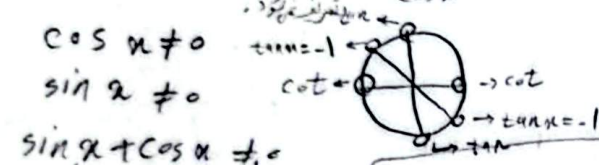
$\sin^2 x \leq 1$

$\sin^2 x \leq \frac{1}{x}$

$-\frac{1}{x} \leq \sin x \leq \frac{1}{x}$



$D_f = \left[k\pi - \frac{\pi}{x}, k\pi + \frac{\pi}{x}\right]$



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الف) $y = \sqrt{2\sin x - 1}$ $2\sin x - 1 \geq 0$
 $\sin x \geq \frac{1}{2}$

ب) $y = \sqrt{1 - 2\cos x}$ (2)

$1 - 2\cos x \geq 0 \Rightarrow \cos x \leq \frac{1}{2}$



$D_f = \left[2k\pi + \frac{\pi}{x}, 2k\pi + \frac{5\pi}{x}\right]$



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الف) $y = \arcsin(\sin x)$
 $-1 \leq \sin x \leq 1$
 $\frac{1}{x} \leq \sin x \leq \frac{1}{x}$
 $\frac{1}{x} \leq \sin x \leq \frac{1}{x}$
 $\frac{1}{x} \leq \sin x \leq \frac{1}{x}$

ب) $\cos y = \sqrt{2 - 2x}$ (3)

$-1 \leq \sqrt{2 - 2x} \leq 1$

$0 \leq \sqrt{2 - 2x} \leq 1$

$\Rightarrow 0 \leq 2 - 2x \leq 1 \Rightarrow 1 \leq x \leq \frac{3}{2}$

$D_f = [-1, 0] \cup \left[-\frac{3}{2}, -1\right]$

$D_f = (1) \cap (2) = \left[2, \frac{5}{x}\right]$

الف) $y = \log_r(1 - \log_x x) \geq 0 \Rightarrow 1 - \log_x x \geq 1 \Rightarrow \log_x x \leq 0 \Rightarrow x \leq 1$

$\Rightarrow (1) \cap (2) = D_f = (\log x)$

ب) $\log\left(\frac{1 - \log_x x}{x}\right) \geq 0$

$\log x \geq 0 \Rightarrow x \geq 1$

$\Rightarrow 1 - \log_x x \geq 1 \Rightarrow \log_x x \leq 0 \Rightarrow x \leq \frac{1}{x}$

$D_f = (1) \cap (2) = \left(\frac{1}{x} + \infty\right)$

الف) $y = \sqrt{r^{x-x^r} - 1} \Rightarrow r^{x-x^r} \geq 1$

$\Rightarrow r^{x-x^r} \geq 1 \Rightarrow x^r - rx + r \leq 0 \Rightarrow (x-1)(x-r) \leq 0$

$D_f = [1, r]$ $\Leftarrow$ $\frac{1}{+ \phi - 1 +}$

ب) $y = \left(\frac{rx + \omega}{rx + r} \right)^{\frac{1}{r-1}}$ $\Rightarrow x = \frac{\omega - r}{rx - r}$

Subject:

DATE

$D_f = \left\{ x \mid x = \frac{\omega - r}{rx - r}, r < x \leq \omega \right\}$