پایان ...

۸,۷۵

لطفاً از دفعات بعد شماره سوال نوشته شود!

۶- الف)

۱) ۶

$$\frac{x^2 - x - 6}{x^4 - 13x^2 + 36} \geq 0$$

$$\frac{(x-3)\cancel{(x+2)}}{(x+3)\cancel{(x-3)}(x-2)\cancel{(x+2)}}$$

$(-\infty, -3) \cup (2, +\infty)$

$-\{2\}$

$-\infty$		-3		2		$+\infty$
	$+$	ت ن	$-$	ت ن	$+$	

ب)

$$\begin{array}{l|l} \cancel{x^3} - 2x^2 - 5x + 6 & x - 1 \\ \cancel{-x^3} + x^2 & \hline \\ \hline -\cancel{x^2} - 5x + 6 & x^2 - x - 6 \\ \cancel{+x^2} - x & \\ \hline -4x + 6 & \end{array}$$

$$\begin{array}{l|l} x^3 - 2x^2 - 5x + 6 & x - 1 \\ -x^3 + x^2 & \hline \\ \hline -\cancel{x^2} - 5x + 6 & x^2 - x - 6 \\ \cancel{+x^2} - x & \\ \hline -6x \cancel{+6} & \\ +6x \cancel{-6} & \end{array}$$

باران حاتم

$\sqrt{[-x]-2}$

$[-x]-2 \geq 0$

$[-x] \geq 2$ ۱,۷۵ ۷

$-x \geq 2$ یعنی $x \leq -2$

$(-\infty , -2]$

$x \in [-1 , 0)$

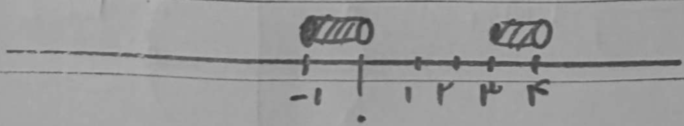
$$\frac{5x^2+9}{[x]^2-2[x]-3}$$

$([x]+1)([x]-3)$

$[x]=-1$

$[x]=3$

$[3 , 4)$



$\mathbb{R} - [-1,0) \cup [3,4)$

D

بازان طاشم

$$x^3+2x^2-5x-6 \;\Big|\; x+1$$

$$\cancel{-x^3}\;\overline{+}\;x^2 \qquad\qquad x^2+x-6$$

$$\cancel{x^2}-5x-6 \qquad\qquad (x+3)(x-2) \quad x=-3,\; x=2$$

$$\cancel{-x^2}\;\overline{+}\;x$$

$$-6x-6$$

$$\cancel{-6x-6}$$

$$0$$

$-\infty$		-3		-2		2		3	$+\infty$
+			+	0	−		−	0	+
+		0	−		−	0	+		+

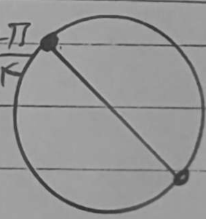
$$D_f = (-\infty,-3) \cup [-2,2) \cup [3,+\infty)$$

$\cot x + 1$

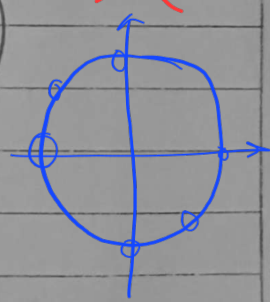
$\tan x + 1$ → $\frac{\sin x}{\cos x}$ → $\cos \neq 0$

$\tan \neq -1$

$k\pi+\frac{\pi}{4}$

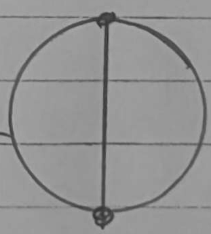


۷) ۸)



$$D = \mathbb{R} - \left\{k\pi+\frac{\pi}{4},\; k\pi+\frac{\pi}{2}\right\}$$

$k\pi+\frac{\pi}{2}$

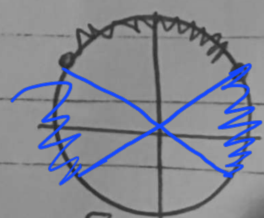


$\sqrt{1-4\sin^2 x}$ $\qquad 1-4\sin^2 x \geq 0$

$1 \geq 4\sin^2 x$

$\frac{1}{4} \geq \sin^2 x$

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



$$D_f = \left[2k\pi+\frac{\pi}{6},\; 2k\pi+\frac{5\pi}{6}\right]$$

$\frac{1}{2}$ sin

SUBJECT:

Year: Month: Day:

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نازلی حاکم

$$f(x) = \begin{cases} 2x^2 - b & |x+1| \geq 2 \; \begin{cases} x \geq 1 \\ x \leq -3 \end{cases} \\ a + 3x & -3 \leq x \leq -1 \end{cases}$$

2 12

$f(-3) = 2(-3) - b \Rightarrow 18 - b$

$f(-3) = a + 3(-3) \longrightarrow a - 9$

$\longrightarrow 18 - b = a - 9 \longrightarrow \boxed{a + b = 27}$

باران هاشم

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SUBJECT: Year: Month: Day:

اگر $2x^2+y^2-4x+6y+k=0$ یک تابع نامنفی باشد k کدام است؟

$$\rightarrow 2x^2-4x = 2(x^2-2x) = 2((x-1)^2-1) = 2(x-1)^2-2$$

۱) (۱

برای $y \leftarrow$

$$y^2+6y = (y^2+6y+9)-9 = (y+3)^2-9$$

جمع سه

$$f(x) = 2(x-1)^2-2+(y+3)^2-9+k = 2(x-1)^2+(y+3)^2+(k-11)$$

$$\Downarrow$$

$$f(x) = 2(x-1)^2+(y+3)^2+(k-11)$$

$\text{if} \rightarrow x=1$

$y=-3$

$$f_{min} = k-11$$

$$\Downarrow$$

$$k \in \mathbb{R}$$

$$f(x)\begin{cases} x^2+4x & x \geq 1 \\ 2x+3 & x < 1 \end{cases}$$

$a^2+4a = \underbrace{2a+a}+2$

$a^2+4a = 3a+2$

$a^2+4a-3a-2=0$

$a^2+a-2=0$

$(a-1)^2 \rightarrow a=1$

$(1)^2+4(1)=$

$1+4=5$

$2+3=5$

$f(1)=5$

date:.. Sub:..

باران طاهر

$$2^{4x - x^2} = 2^3$$

$$4x - x^2 = 3$$

$$x^2 - 4x + 3 = 0$$

$$(x-3)(x-1) \quad \begin{cases} x = 3 \\ x = 1 \end{cases}$$

باران هاشم

Page: (   )

SUBJECT:
Year: Month: Day:

اگر $2x^2+y^2-4x+6y+k=0$ یک تابع نامنفی باشد k کدام است؟

$\rightarrow 2x^2-4x = 2(x^2-2x) = 2((x-1)^2-1) =$
$2(x-1)^2-2$

برای $y \leftarrow$

$y^2+6y = (y^2+6y+9)-9 = (y+3)^2-9$

جمع سه

$f(x) = 2(x-1)^2-2+(y+3)^2-9+k =$
$2(x-1)^2+(y+3)^2+(k-11)$

$\Downarrow$

$f(x) = 2(x-1)^2+(y+3)^2+(k-11)$

$f_{min} = k-11$ if $\rightarrow x=1$, $y=-3$

$\Downarrow$

$K\in \mathbb{R}$

$f(x)\begin{cases} x^2+4x & x\geq 1 \\ 2x+3 & x<1 \end{cases}$ $a^2+4a = \underbrace{2a+a}+2$ (2

$a^2+4a = 3a+2$

$a^2+4a-3a-2=0$

$a^2+a-2=0$

$(a-1)^2 \rightarrow a=1$

$(1)^2+4(1) =$
$1+4=5$
$2+3=5$
$f(1)=5$

Senobar

$$\begin{array}{l|l} x^3+2x^2-5x-6 & x+1 \\ \cline{2-2} \cancel{-x^3}\ \ -x^2 & x^2+x-6 \\ \hline \cancel{x^2}-5x-6 & (x+3)(x-2) \\ \cancel{-x^2}\ \ -x & \\ \hline \cancel{-6x-6} & \\ -6x-6 & \\ \hline 0 & \end{array}$$

$x=-3$

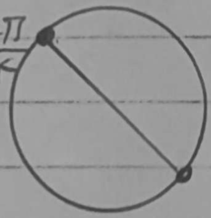
$x=2$

$-\infty$	-3		-2		2		3	$+\infty$
+		+	0	−		−	0	+
+	0	−		−	0	+		+
		−				−		

$D_f = (-\infty, -3) \cup [-2, 2) \cup [3, +\infty)$

$$\frac{\cot x+1}{\tan x+1}$$

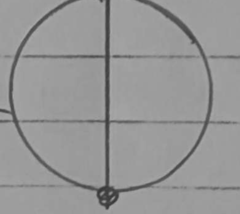
$\tan \neq -1$



$k\pi+\frac{\pi}{4}$

$\tan x+1 \to \frac{\sin x}{\cos x} \to \cos \neq 0$

$D = \mathbb{R} - \{k\pi+\frac{\pi}{4}, k\pi+\frac{\pi}{2}\}$ $\quad k\pi+\frac{\pi}{2}$



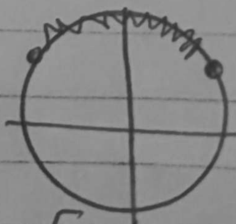
$\sqrt{1-4\sin^2 x}$ $\qquad 1-4\sin^2 x \geq 0$

$1 \geq 4\sin^2 x$

$\frac{1}{4} \geq \sin^2 x$

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

$\frac{1}{2} \geq \sin x$



$D_f = [2k\pi+\frac{\pi}{6}, 2k\pi+\frac{5\pi}{6}]$

۶- الف)

$$\cancel{(x-3)(x+2)}$$

$$\frac{x^2-x-6}{x^4-13x^2+36} \geq 0$$

$$\cancel{(x+3)(x-3)}(x-2)\cancel{(x+2)}$$

$(-\infty,-3)\cup(2,+\infty)$

$-\infty$	-3		2	$+\infty$
+		−		+

ب)

$$\begin{array}{l|l} \cancel{x^3}-2x^2-5x+6 & x-1 \\ \cancel{-x^3}+x^2 & \hline x^2-x-6 \\ \hline -\cancel{x^2}-5x+6 & \\ +\cancel{x^2}-x & \\ \hline -6x+6 & \end{array}$$

$$\begin{array}{l|l} x^3-2x^2-5x+6 & x-1 \\ -x^3+x^2 & \hline x^2-x-6 \\ \hline -\cancel{x^2}-5x+6 & \\ +\cancel{x^2}-x & \\ \hline \cancel{-6x+6} & \\ \cancel{-6x+6} & \end{array}$$

$$f(x)\begin{cases} ۲x^{۲}-b & |x+۱| \geqslant ۲ \begin{cases} x \geqslant ۱ \\ x \leqslant -۳ \end{cases} \\ a+۲x & -۳ \leqslant x \leqslant -۱ \end{cases}$$

$$f(-۳) = ۲(-۳) - b \Rightarrow ۱۸ - b$$

$$f(-۳) = a + ۲(-۳) \longrightarrow a - ۶$$

$$\longrightarrow ۱۸ - b = a - ۶ \longrightarrow \boxed{a + b = ۲۴}$$