

subject: کالین ۶ دیمبر A Date: ریلی

طالاب جفری

بیشتر استادان مسافر تسم و شواستم در برگه بنویس

(برگه نداشت)

۱۴۱۰

subject:

Date:

$$y = \frac{x+2}{4x^3 - 20x^2 + 31x - 15}$$

5

$$\Rightarrow \text{برای } x \text{ بخش نیز: } 4 - 20 + 31 - 15 = 0 \Rightarrow$$

$$\begin{array}{r} 4x^3 - 20x^2 + 31x - 15 \quad | \quad x - 1 \\ - 4x^3 + 4x^2 \\ \hline -16x^2 + 31x - 15 \\ + 16x^2 - 16x \\ \hline 15x - 15 \\ - 15x + 15 \\ \hline 0 \end{array} \quad (4x^2 - 16x + 15)(x - 1) \neq 0$$

$$\Delta = b^2 - 4ac = (-16)^2 - 4(4)(15) = 256 - 240 = 16$$

$$x = \frac{-b \pm \sqrt{\Delta}}{2a} = \frac{16 \pm \sqrt{16}}{8} = \frac{16 \pm 4}{8}$$

$$D_f = IR - \left\{ \frac{1}{2}, 1, \frac{13}{2} \right\}$$

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$$b) y = \frac{x+3}{3x^3 - x^2 - 11x - 5} \Rightarrow 3x^3 - x^2 - 11x - 5 \neq 0$$

$$3 - 11 = -8 \quad -1 - 5 = -6 \Rightarrow \text{برای } x+3 \text{ بخش پذیر نیست}$$

$$\begin{array}{r} 3x^3 - x^2 - 11x - 5 \quad | \quad x+1 \\ -3x^3 \quad 3x^2 \\ \hline \end{array}$$

$$-3x^2 - 11x - 5$$

$$+ 3x^2 + 3x$$

$$-8x - 5$$

$$+ 8x + 8$$

0

$$(3x^2 - 4x - 5)(x+1) \neq 0$$

$$\Delta = b^2 - 4ac = (-4)^2 - 4(3)(-5)$$

$$= 64$$

$$x = \frac{-b \pm \sqrt{\Delta}}{2a}$$

$$= \frac{-(-4) \pm \sqrt{64}}{2(3)} = \frac{4 \pm 8}{6}$$

$$= \frac{4+8}{6} = \frac{12}{6} = 2$$

$$= \frac{4-8}{6} = \frac{-4}{6} = -\frac{2}{3}$$

$$Df = \mathbb{R} - \left\{ 2, -\frac{2}{3} \right\}$$

subject:

Date: . . .

$$الف) y = \frac{x+1}{x-\sqrt{3-2x}} \Rightarrow x-\sqrt{3-2x} \neq 0$$

1, 0

$$\Rightarrow x \neq \sqrt{3-2x} \Rightarrow x^2 \neq 3-2x \Rightarrow$$

$$x^2 + 2x - 3 \neq 0 \Rightarrow x = 1$$

$$1+2-3=0$$

$$x = \frac{c}{a} = \frac{-3}{1} = -3$$

$$D_f = IR = \{1, -3\}$$

$$1 - \frac{\sqrt{3-2x}}{1} = 0 \checkmark$$

$$-3 - \frac{\sqrt{3-2(-3)}}{1} = 0 \Rightarrow \frac{-3-\sqrt{9}}{1} = 0 \Rightarrow \frac{-3-3}{1} = 0 \Rightarrow -6 = 0$$

$$ب) y = \frac{x+2}{x-\sqrt{3x-2}} \Rightarrow x-\sqrt{3x-2} \neq 0$$

0, 1, 0

$$\Rightarrow x \neq \sqrt{3x-2} \Rightarrow x^2 \neq 3x-2 \Rightarrow$$

$$x^2 - 3x + 2 \neq 0 \Rightarrow x = 1$$

$$1+2-3=0$$

$$x = \frac{c}{a} = \frac{2}{1} = 2$$

$$3x-2 \geq 0 \Rightarrow x \geq \frac{2}{3}$$

$$D_f = IR = \{1, 2\}$$

$$1 - \frac{\sqrt{3x-2}}{1} = 0$$

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$$2 - \frac{\sqrt{3x-2}}{1} = 0$$

ب) $\frac{\sin x}{y \cos x - 1} \Rightarrow y \cos x - 1 \neq 0$ (1, 2, 3)

$\Rightarrow y \cos x \neq 1 \Rightarrow \cos x \neq \frac{1}{y}$

$D_f = \mathbb{R} - \left\{ yk\pi + \frac{\pi}{y}, yk\pi + \frac{2\pi}{y} \right\}$

ج) $\frac{\cos x + 1}{y \sin x + 1} \Rightarrow y \sin x + 1 \neq 0 \Rightarrow y \sin x \neq -1$

$\Rightarrow \sin x \neq -\frac{1}{y} \Rightarrow D_f = \mathbb{R} - \left\{ yk\pi + \frac{3\pi}{2}, yk\pi + \frac{5\pi}{2} \right\}$

د) $y = \frac{\tan x + 1}{\cot x - 1} \Rightarrow \cot x - 1 \neq 0 \Rightarrow \cot x \neq 1$

$\Rightarrow D_f = \mathbb{R} - \left\{ yk\pi, yk\pi + \frac{\pi}{y}, yk\pi + \frac{\pi}{y}, yk\pi + \frac{3\pi}{y} \right\}$

هـ) $y = \frac{\sin x + 1}{f \sin^2 x - 3} \Rightarrow f \sin^2 x - 3 \neq 0 \Rightarrow f \sin^2 x \neq 3 \Rightarrow \sin^2 x \neq \frac{3}{f}$

$\Rightarrow \sin x \neq \pm \frac{\sqrt{3}}{\sqrt{f}} \Rightarrow D_f = \mathbb{R} - \left\{ yk\pi + \frac{\pi}{y}, yk\pi + \frac{3\pi}{y} \right\}$

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Date:

الف) $x^2 - 5x + 6 > 0 \Rightarrow \Delta = b^2 - 4ac \Rightarrow (f$
 $1 - 5 + 6 = 2x$
 $x = \frac{-b \pm \sqrt{\Delta}}{2a} = \frac{5 \pm \sqrt{1}}{2} = \frac{5+1}{2} = 3$
 $\frac{5-1}{2} = 2$
 $(-\infty, 2) \cup (3, +\infty)$

ب) $x^2 - 6x + 5 < 0 \Rightarrow x = 1$
 $x = \frac{c}{a} = 5$
 $1 - 6 + 5 = 0$
 $(1, 5)$

ج) $x^2 + 9x + 5 > 0 \Rightarrow x = -1$
 $x = -\frac{c}{a} = -5$
 $1 + 5 = 6$
 $(-\infty, -5] \cup [-1, +\infty)$

د) $x^2 - 7x + 6 < 0 \Rightarrow x = 1$
 $x = \frac{c}{a} = 6$
 $1 - 7 + 6 = 0$
 $[1, 6]$

ا) $\frac{x^2 - 3x + 1}{x - 5} < 0 \Rightarrow$ $1 + 1 - 3 = 0 \Rightarrow x = 1$
 $x = 5$

$(-\infty, 1) \cup (5, +\infty)$

ب) $\frac{x^2 - 1}{x^2 - 5x + 5} \geq 0$
 $1 + 5 - 5 = 0 \Rightarrow x = 1$
 $x = 5$

$(-\infty, 1) \cup (5, +\infty)$

ا) $y = \sqrt{\frac{x^2 - 5x + 3}{x^2 - 1}} \Rightarrow \frac{x^2 - 5x + 3}{x^2 - 1} \geq 0$
 $1 + 3 - 3 = 0 \Rightarrow x = 1$
 $x = 3$

ب) $y = \sqrt{\frac{x^2 - 4x + 3}{x^2 - 1}} \Rightarrow \frac{x^2 - 4x + 3}{x^2 - 1} \geq 0$

$x^2 - 1 \neq 0 \Rightarrow x^2 \neq 1 \Rightarrow x \neq \pm 1$

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

subject:

Date:

$$f(x) = \log(x^2 - 3x) \Rightarrow \quad (1)$$

$$x^2 - 3x > 0 \Rightarrow x^2 > 3x \rightarrow x^2 - 3x > 0$$

$$\rightarrow x(x-3) > 0 \quad \begin{matrix} x > 0 \\ x > 3 \end{matrix} \rightarrow D_f = x > 3$$

$$f(x) = \log(14 - x^2) \rightarrow 14 - x^2 > 0 \rightarrow 14 > x^2$$

$$|x| < \sqrt{14} \rightarrow -\sqrt{14} < x < \sqrt{14}$$

$$\rightarrow x > 2 \quad x < -2 \quad D_f = (-\sqrt{14} - 2) \cup (2 \sqrt{14})$$

$$\rightarrow x \neq \pm 3$$



$$g(x) = \log \frac{x^2 - 7x + 12}{1 - x} \rightarrow \frac{x^2 - 7x + 12}{x - 3} > 0$$

(4) امامزاده سید محمد
استان مقدس

$$y = \sqrt{x^2 - 11x + 28} + \log \frac{\sqrt{36 - x^2}}{x} \leq 1$$

2.2

$$\underbrace{x^2 - 11x + 28 \geq 0}_{(x-4)(x-7)} \Rightarrow \begin{array}{c} x \\ + \quad - \quad + \end{array}$$

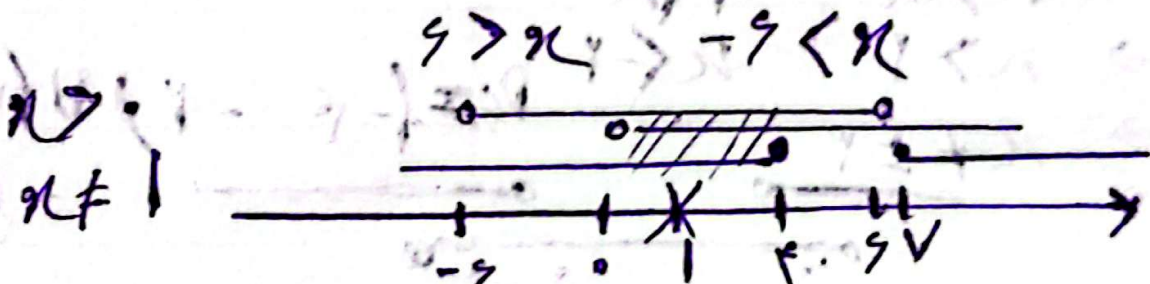
$$(-\infty, 4] \cup [7, +\infty)$$

$$\log \frac{\sqrt{36 - x^2}}{x} \rightarrow \sqrt{36 - x^2} > 0 \rightarrow$$

$$\sqrt{36 - x^2} > 0 \rightarrow$$

$$36 - x^2 > 0 \rightarrow$$

$$36 > x^2 \rightarrow$$



$$(0, 4], -\{1\}$$

Def =

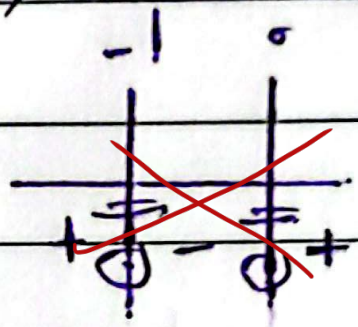
subject:

Date: . . .

$$y = \frac{x^2 - x}{x^2 + x} \rightarrow x(x+1)$$

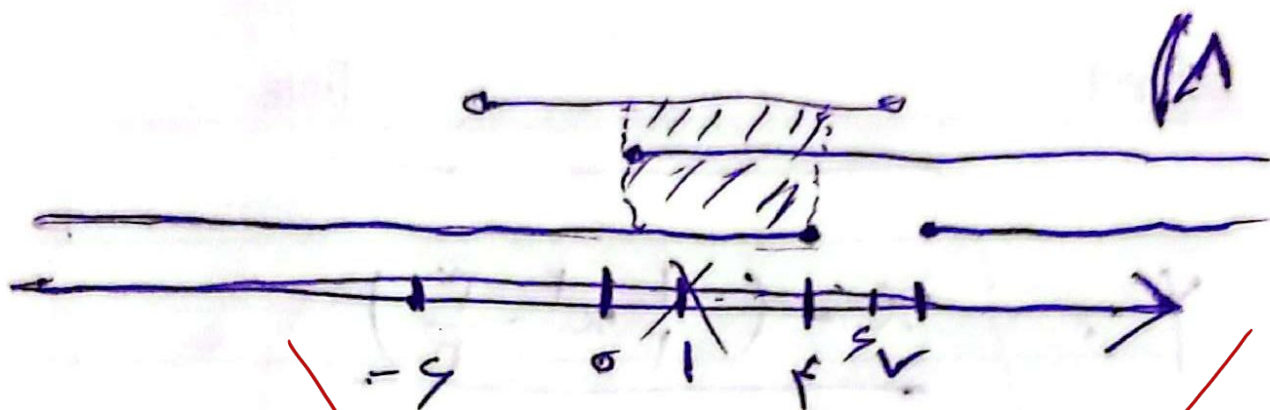
(1)

	-1	0	
x	-	+	+
$x-1$	-	-	+
$f(x)$	+	-	+



$$D_f = (-\infty -1) \cup (0 +\infty)$$

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$$\left[\begin{array}{c} 0 \\ r \end{array} \right] \cdot \begin{Bmatrix} 1 \end{Bmatrix}$$

$$\frac{1}{r}x^r - \frac{r}{r} = y$$

$$ax^r + bx + c = y$$

$$9a + 3b + c = 3 \quad (1)$$

$$8a + 2b + c = 0 \quad (2)$$

$$a - b + c = -1 \quad (3)$$

$$8a + 2b + c = 0 \quad (4)$$

$$a - \frac{r}{r} = -1$$

$$a = \frac{1}{r}$$

$$\cancel{8a + 2b + c} = \cancel{8a - 2b + c}$$

$$b = 0$$

$$a = -c - 1$$

$$-9c - 9 + 0 + c = 3$$

$$-8c = 12 \Rightarrow c = -\frac{3}{2}$$

subject:

Date: . . .

$$y = \sqrt{\frac{x + \left(\frac{1}{r} x^r - \frac{r}{r} \right)}{\frac{1}{r} x^r - \frac{r}{r}}}$$

$$= \sqrt{\frac{-\frac{1}{r} x^r + x + \frac{r}{r}}{\frac{1}{r} x^r - \frac{r}{r}}}$$

(1)

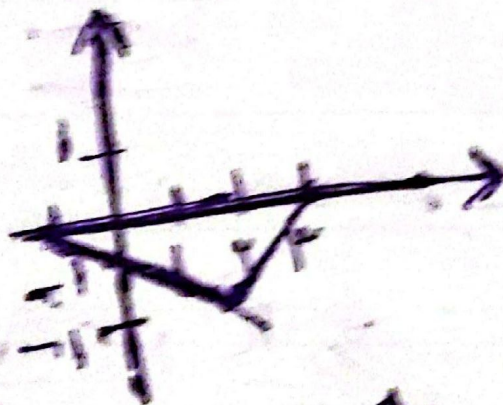
$$f(x) + 1 =$$



$$f(x - 1) =$$



$$-f(x) =$$



$$f(x + 1) + 2$$

