

مجموع ضرایب خارج از است $\Rightarrow$ $x-1$ بر $x^3-7x^2+14x-15$ بخش پذیر است $\rightarrow$ $y = \frac{x+4}{x^3-7x^2+14x-15}$

$$\cup) y = x + 1 \rightarrow (x - \frac{5}{y})(x - \frac{y}{y})(x - 1) \neq 0$$

ب) $\gamma = \frac{x+1}{1^2x^2 - x^2 - 1x - 2}$ → جميع ضربات رقم واحد في المخرج

$$\frac{1}{x^2} = x^{-2} \Rightarrow -2x^{-3} = -\frac{2}{x^3} = -\frac{2}{x^2 \cdot x} = -\frac{2}{x^2} \cdot \frac{1}{x}$$

$$Df = R - \left\{ -1, r, -\frac{r}{r} \right\} \rightarrow Df = R - \left\{ 1, \frac{r}{r}, \frac{r}{r} \right\}$$

$$\begin{array}{r|l} 2x^3 - 5x^2 + 11x - 10 & x-1 \\ \hline -2x^3 + 2x^2 & \\ \hline 7x^2 + 11x - 10 & \\ -7x^2 + 7x & \\ \hline 18x - 10 & \\ -18x + 18 & \\ \hline 8 & \end{array}$$

$$\text{ii) } y = \frac{x+1}{2-\sqrt{3-2x}} \Rightarrow \begin{cases} 3-2x \geq 0 \rightarrow x \leq \frac{3}{2} \\ 2-\sqrt{3-2x} \neq 0 \end{cases}$$

$$k \neq 1 \rightarrow D_4 = (-\infty, \frac{w}{v}] - \{1\}$$

$$x - \sqrt{p - 1}x \neq 0 \rightarrow x^r \neq p - 1x \rightarrow x + 1x - p \neq 0 \rightarrow (x-1)(x+p) \neq 0$$

$$\rightarrow \gamma = \frac{x+r}{x - \sqrt{r(x-r)}} \begin{cases} \rightarrow r(x-r) > 0 \rightarrow x > \frac{r}{x} \\ \rightarrow x = \sqrt{\frac{r}{x-r}} \end{cases}$$

$$u = \sqrt{v_{u-1}} \neq 0 \rightarrow u^p \neq v_{u-1} \rightarrow u^p - v_{u-1} \neq 0 \rightarrow (u-1)(u-2) \neq 0$$

$$\rightarrow D_+^2 = \left[\frac{r}{r_*}, +\infty \right) - \{1, r\}$$

$$\rightarrow x \neq 1, y$$

$$\text{ii) } y = \frac{\sin m}{\cos x - 1}$$

$$\rightarrow r \cos \alpha - 1 \neq 0 \rightarrow \cos \alpha \neq \frac{1}{r} \rightarrow \alpha \neq 4^\circ, 100^\circ \rightarrow D_2 = 1R - \left\{ \gamma_{KII} + \frac{\pi}{2}, \gamma_{KII} + \frac{3\pi}{2} \right\}$$

$$b) y = \frac{\cos u + 1}{y \sin u + 1}$$

$$\rightarrow \sin u + 1 \neq 0 \rightarrow \sin u \neq -1 \rightarrow u \neq \frac{3\pi}{2}, \frac{7\pi}{2} \rightarrow Q_1 = \mathbb{R} - \left\{ \frac{3\pi}{2}, \frac{7\pi}{2} \right\}$$

$$2) y = \frac{\tan u + 1}{\cot u - 1}$$

$$\frac{r}{-1} \rightarrow \cot u - 1 \neq 0 \rightarrow \frac{\cos}{\sin u} \neq 1 \rightarrow \cos u \neq \sin u \rightarrow u \neq 20^\circ, 170^\circ \rightarrow D_f = \mathbb{R} - \left\{ \frac{\pi}{2} \right\}$$

$$2) y = \frac{\sin x + 1}{\sin x - 1}$$

$$\rightarrow \{ \sin^2 u - r \neq 0 \rightarrow \sin^2 u \neq \frac{r}{\xi} \rightarrow \sin u \neq \frac{\sqrt{r}}{\xi} \rightarrow u \neq 90^\circ, 180^\circ \rightarrow D_1^2 = 1P - \{ \pi + \frac{\pi}{\xi}, \pi + \frac{\pi}{\xi} \}$$

الـ) $x^2 - 5x + 4 > 0 \rightarrow (x-1)(x-4) > 0$

$$\frac{+ \phi - \phi +}{\quad} \rightarrow D_f = (-\infty, r) \cup (r, +\infty)$$

4) $x^2 - 9x + 20 < 0 \rightarrow (x-5)(x-4) < 0$

$\frac{1}{+} \frac{\omega}{+} \rightarrow D_+^{\omega} = (1, \omega)$

$$(i) \quad u^r + g_{u+w} \geq 0 \rightarrow (u+1)(u+w) \geq 0$$

$$\begin{array}{c} -2 \quad -1 \\ + \quad - \quad + \end{array} \rightarrow \mathcal{D}_f = (-\infty, -2], [-1, +\infty)$$

$$b) x^2 - 17x + 4 \leq 0 \rightarrow (x-1)(x-4) \leq 0$$

$$\begin{array}{ccccc} & 1 & & 4 & \\ + & \phi & - & \phi & + \end{array} \rightarrow D_+^2 = [1, 4]$$

$$\text{الف) } \frac{x^2 - 3x + 2}{x - 5} < 0 \rightarrow \frac{(x-1)(x-2)}{(x-5)} < 0$$

$$\frac{1}{-\phi} + \frac{y}{\phi} - \frac{\omega}{\phi} \rightarrow D_+ = (-\infty, 1) \cup (y, \omega)$$

$$\rightarrow) \frac{x^2-1}{x^2-4x+4} \geq 0 \rightarrow \frac{(x+1)(x-1)}{(x-1)(x-2)} \geq 0$$

$$\frac{-1 \quad 1 \quad \omega}{+\phi - \psi - \psi +} \rightarrow D_+^n = (-\infty, -1] \cup (\omega, +\infty)$$

$$أ) \gamma = \sqrt{\frac{x^2 - 2x + 2}{x^2 - 1}} \rightarrow \frac{x^2 - 2x + 2}{x^2 - 1} \geq 0 \rightarrow \frac{(x-1)(x-2)}{(x-1)(x+1)(x+1)} \geq 0$$

$$\frac{-1}{-} \frac{1}{+} \frac{2}{+} \rightarrow D_f = [1, +\infty)$$

$$\rightarrow \gamma = \sqrt{\frac{x^2 - 2x + 2}{x^2 - 1}} \rightarrow \frac{x^2 - 2x + 2}{x^2 - 1} \rightarrow x^2 - 1 \neq 0 \rightarrow x \neq \pm 1 \rightarrow D_f = \mathbb{R} - \{1, -1\}$$

$$أ) \gamma = \log(x^2 - 2x) \rightarrow x^2 - 2x > 0 \rightarrow x(x-2) > 0 \rightarrow \frac{0}{+} \frac{2}{-} \frac{+}{+} \rightarrow D_f = [2, +\infty) \cup (-\infty, 0]$$

$$ب) \gamma = \log_{|x|-2}^{14-x^2} \rightarrow \begin{cases} 14-x^2 > 0 \rightarrow x < +\sqrt{14}, x > -\sqrt{14} \\ |x|-2 > 0, |x|-2 \neq 1 \rightarrow x > 2, x < -2, x \neq \pm 3 \end{cases}$$

$$\xrightarrow{\text{استنتاج}} D_f = (-\sqrt{14}, -2) \cup (2, \sqrt{14}) - \{\pm 3\}$$

$$ج) \gamma = \log \frac{x^2 - 2x + 2}{x-2} \rightarrow \frac{x^2 - 2x + 2}{x-2} > 0 \rightarrow \frac{(x-2)(x-1)}{(x-2)} > 0 \rightarrow \frac{1}{-} \frac{2}{-} \frac{+}{+} \rightarrow x > 2$$

$$1-x > 0, 1-x \neq 1 \rightarrow x < 1, x \neq 0$$

$$\xrightarrow{\text{استنتاج}} D_f = (2, +\infty) - \{0\}$$

$$د) \sqrt{x^2 - 11x + 21} + \log \frac{\sqrt{x^2 - 2x}}{x} \rightarrow \begin{cases} \sqrt{x^2 - 2x} > 0 \rightarrow x^2 - 2x > 0 \rightarrow (x-2)(x-0) > 0 \rightarrow x < 0, x > 2 \\ x^2 - 11x + 21 > 0 \rightarrow (x-3)(x-7) > 0 \rightarrow x < 3, x > 7 \end{cases}$$

$$\xrightarrow{\text{استنتاج}} D_f = (0, 2] - \{1\}$$

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

$$D_f = \mathbb{R} - \{0, -1\}$$

نقطة بارعة :

	x	-1	0	1
$x^2 - x$	+	+	0	+
$x^2 + x$	-	0	+	-

درج ساد (سبع)

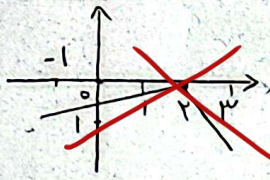
$$\frac{-1}{+} \frac{0}{-} \frac{1}{+} \rightarrow$$

$$\gamma = \sqrt{\frac{x-f(n)}{f(n)}} \rightarrow \frac{x-f(n)}{f(n)} \geq 0, f(n) \neq 0$$

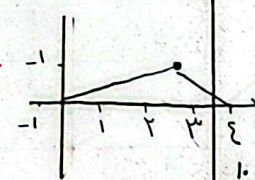
$$\frac{2}{+} \frac{3}{-} \frac{3}{-} \rightarrow D_f = (-\infty, -2) \cup (2, 3]$$

0, 1, 2, 3

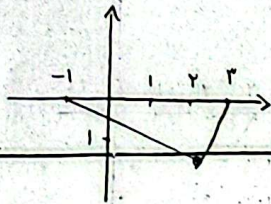
أ) $f(n) + 1$



ب) $f(n-1)$



ج) $-f(n)$



د) $f(n+1) + 2$

