

الف)
$$\begin{array}{r} 4m^3 - 10m^2 + 11m - 15 \\ - 4m^3 + 4m^2 \\ \hline -14m^2 + 11m \\ + 14m^2 - 14m \\ \hline 15m - 15 \\ - 15m + 15 \\ \hline 0 \end{array}$$

$$\frac{m-1}{4m^2 - 14m + 15}$$

$$(m-1)(2m-3)(2m-5)$$

$$\Rightarrow D_f = R - \left\{ 1, \frac{3}{2}, \frac{5}{2} \right\}$$

ب)
$$\begin{array}{r} m^3 - m^2 - 11m + 10 \\ - m^3 + m^2 \\ \hline -11m + 10 \\ + 11m - 10 \\ \hline 0 \end{array}$$

$$\frac{m+1}{m^2 - 4m - 5}$$

$$(m+1)(m-5)(m+1)$$

$$\Rightarrow D_f = \left\{ -1, 2, \frac{5}{2} \right\}$$

الف)
$$\begin{cases} m - \sqrt{3-2m} \neq 0 \rightarrow m \neq \sqrt{3-2m} \rightarrow m^2 \neq 3-2m \rightarrow m^2 + 2m - 3 \neq 0 \\ 3-2m \geq 0 \rightarrow 3 \geq 2m \rightarrow \frac{3}{2} \geq m \end{cases}$$

$$\Rightarrow D_f = R - (-\infty, \frac{3}{2}] - \{1\}$$

خطب از دست $-3-59 = -4 \neq 0$

ب)
$$\begin{cases} m - \sqrt{3m-2} \neq 0 \rightarrow m \neq \sqrt{3m-2} \rightarrow m^2 \neq 3m-2 \rightarrow m^2 - 3m + 2 \neq 0 \\ 3m-2 \geq 0 \rightarrow 3m \geq 2 \rightarrow m \geq \frac{2}{3} \end{cases}$$

$$\Rightarrow D_f = R - [\frac{2}{3}, +\infty) - \{1, 2\}$$

الف) $\cos m \neq \frac{1}{p} \rightarrow \cos m \neq \frac{1}{p}$



$$\Rightarrow D_f = R - \left\{ p k \pi + \frac{\pi}{p}, p k \pi - \frac{\pi}{p} \right\}$$

ج) $\cos m \neq 0$
 $\sin m \neq 0$
 $\cot m - 1 \neq 0 \rightarrow \cot m \neq 1$



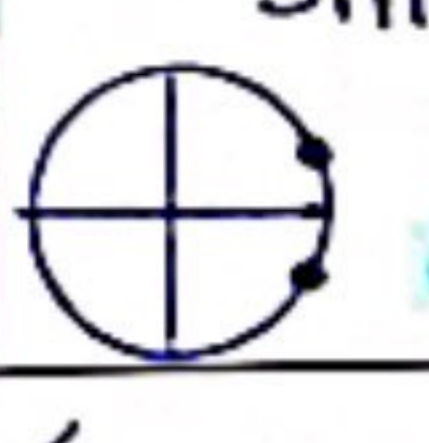
$$D_f = R - \left\{ k\pi, k\pi + \frac{\pi}{4}, k\pi + \frac{3\pi}{4} \right\}$$

د) $\sin m + 1 \neq 0$
 $\sin m \neq -1$



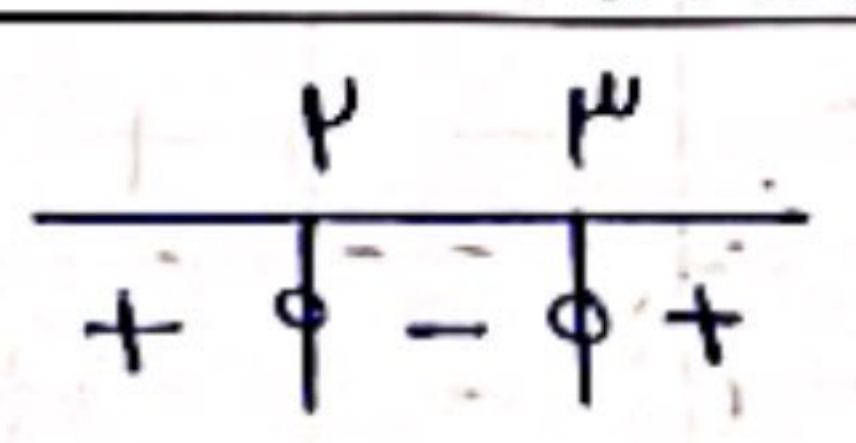
$$D_f = R - \left\{ p k \pi - \frac{5\pi}{4}, p k \pi - \frac{\pi}{4} \right\}$$

ه) $\sin^2 m \neq \frac{p}{k} \rightarrow \sin m \neq \frac{\sqrt{p}}{k}$



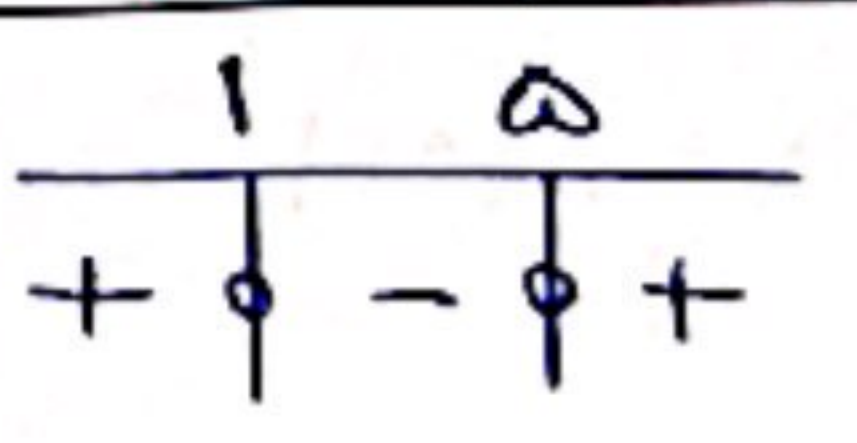
$$D_f = R - \left\{ p k \pi + \frac{\pi}{4}, p k \pi - \frac{\pi}{4} \right\}$$

الف) $m^2 - 5m + 4 > 0$
 $(m-2)(m-4) > 0$



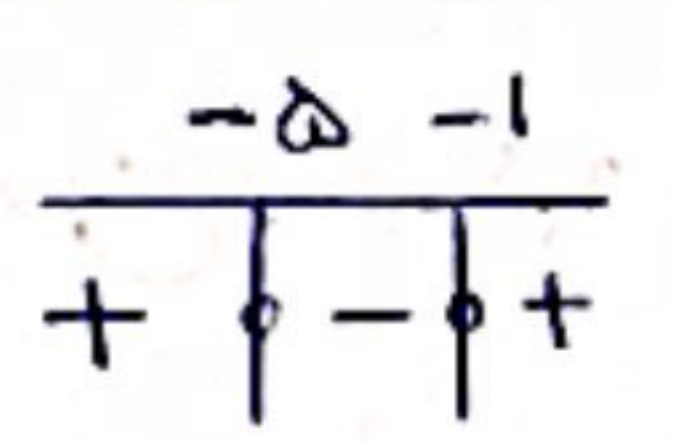
$$D_f = (-\infty, 2) \cup (4, +\infty)$$

ب) $m^2 - 4m + 5 < 0$
 $(m-1)(m-5) < 0$



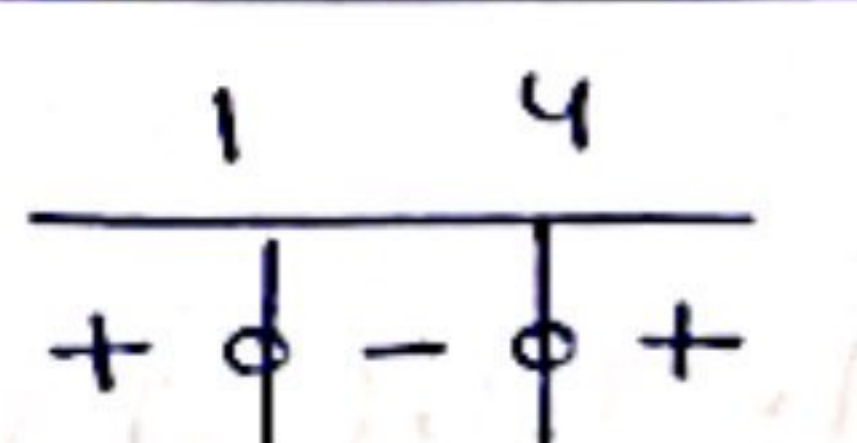
$$D_f = (1, 5)$$

ج) $m^2 + 4m + 5 \geq 0$
 $(m+1)(m+5) \geq 0$



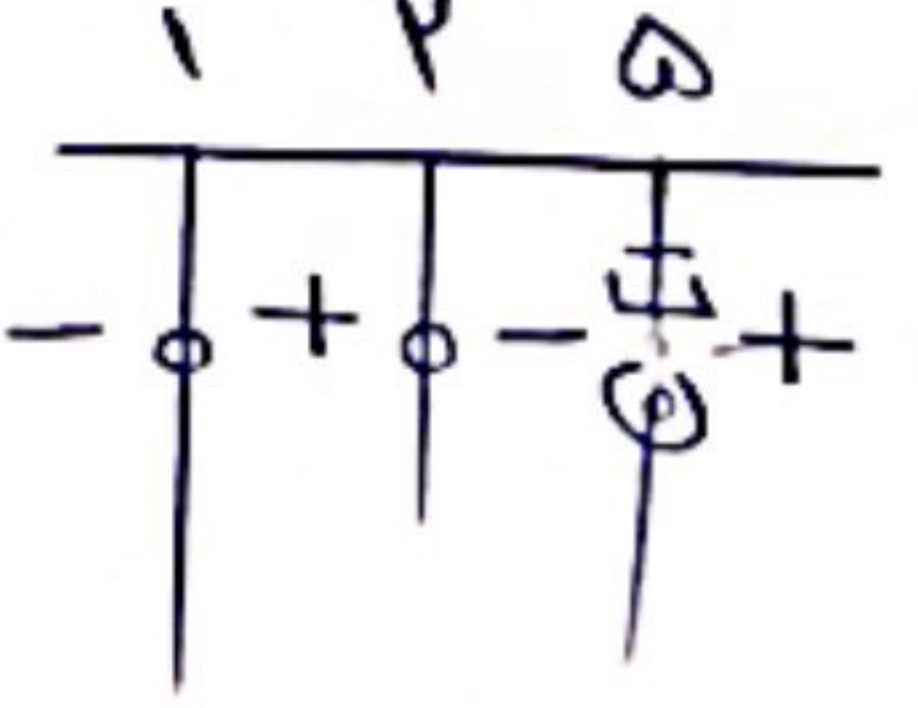
$$D_f = (-\infty, -5] \cup [-1, +\infty)$$

د) $m^2 - 7m + 4 \leq 0$
 $(m-1)(m-4) \leq 0$



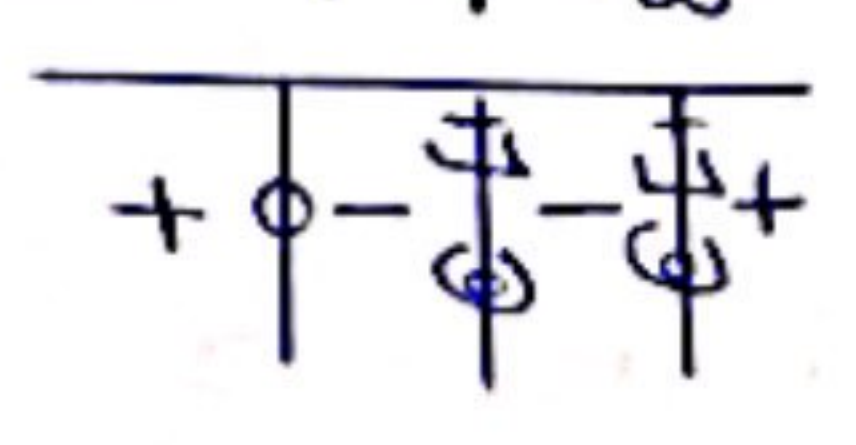
$$D_f = [1, 4]$$

الف) $\frac{m^2 - 3m + 2}{m-5} = \frac{(m-1)(m-2)}{m-5} < 0$
 $m \neq 5$



$$D_f = (-\infty, 1) \cup (2, 5)$$

ب) $\frac{(m+1)(m-1)}{(m-1)(m-5)} \geq 0$



$$D_f = (-\infty, -1] \cup (5, +\infty)$$

الف) $\frac{x^3 - 4x + 3}{x^3 - 1} \geq 0 \rightarrow \frac{(x-1)(x-1)(x+1)}{(x-1)(x^2+x+1)}$

*1 3

- 1 - 0 +

$\Delta = 1 - 4 = -3 < 0$
پس اشیاء ندارد.

$D_f = [1, +\infty)$

ب) :

چون فرجه فرد است پس فقط معراج $\neq 0$

$x^3 - 1 \neq 0$
 $(x+1)(x-1) \neq 0 \rightarrow x \neq -1$
 $x \neq 1$

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

الف) $x^2 - 3x > 0$
 $x(x-3) > 0$

0 3

+ 0 - +

$D_f = (-\infty, 0] \cup [3, +\infty)$

ج) $\frac{(x-1)(x-3)}{x-2} > 0 \rightarrow \frac{x^2 - 4x + 3}{x-2}$

*3 4

- 2 - 0 +

$\rightarrow x = [4, +\infty)$

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

$D_f = (4, 1) - \{0\}$

ب) $|4-x^2| > 0 \rightarrow x^2 < 4 \rightarrow -2 < x < 2$

$|x-2| > 0 \rightarrow |x| > 2 \rightarrow x > 2$
 $x < -2$

$|x-2| \neq 1 \rightarrow |x| \neq 3 \rightarrow x \neq -3, 3$

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

د) $x^2 - 11x + 28 > 0 \rightarrow (x-4)(x-7) > 0$

4 7

+ 0 - 0 +

$x > 0$
 $x \neq 1$

$34 - x^2 = -(x-4)(x+4) > 0$

-4 4

- 0 + 0 -

$\rightarrow [0, 4] - \{1\}$

اوشن ایا ربائی $\rightarrow$

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

اوشن مساج $\rightarrow \frac{x(x-1)}{x(x+1)}$

-1 0 1

+ 0 - 0 +

$x - f(x) = 0$
 $x = f(x) \rightarrow x = 3, -1$

$f(x) = 0 \rightarrow x = 2, -2$

$D_f = (-2, -1] \cup (2, 3]$

	-2	-1	2	3
$x - f(x)$	-	-	+	-
$f(x)$	+	-	-	+
$p(x)$	-	+	-	+

چون در اشیاء است پس $x > 0$ را انقباض می‌کنیم $\leftarrow$

