

الف) $f(x, y)$	ب) $M_f(x)$	۱
ج) $f(x, y)$	د) $f(x, y)$	۱
الف) $x^2 - 5x + 6 > 0 \Rightarrow (x-2)(x-3) > 0$	$\frac{x}{+ \quad - \quad - \quad +}$ $\Rightarrow D_f = (-\infty, 2) \cup (3, +\infty)$	۲
ب) $x^2 - 5x + 6 < 0 \Rightarrow (x-2)(x-3) < 0$	$\frac{x}{+ \quad - \quad - \quad +}$ $\Rightarrow D_f = (2, 3)$	
ج) $x^2 + 5x + 6 \geq 0 \Rightarrow (x+1)(x+6) \geq 0$	$\frac{x}{+ \quad - \quad - \quad +}$ $\Rightarrow D_f = (-\infty, -6] \cup [-1, +\infty)$	
د) $x^2 - 7x + 6 \leq 0 \Rightarrow (x-1)(x-6) \leq 0$	$\frac{x}{+ \quad - \quad - \quad +}$ $\Rightarrow D_f = [1, 6]$	
الف) $\frac{x^2 - 3x + 2}{x-2} < 0 \Rightarrow \frac{(x-1)(x-2)}{(x-2)} < 0$	ب) $\frac{x^2 - 1}{x^2 - 5x + 6} \geq 0 \Rightarrow \frac{(x+1)(x-1)}{(x-2)(x-3)} \geq 0$	۳
$\Rightarrow \frac{x}{- \quad + \quad - \quad +}$ $\Rightarrow x < 1$ $2 < x < 3$	$\Rightarrow \frac{x}{+ \quad - \quad - \quad +}$ $\Rightarrow x \leq 1$ $x > 3$	
$\Rightarrow D_f = (-\infty, 1) \cup (2, 3)$	$\Rightarrow D_f = (-\infty, -1] \cup (3, +\infty)$	
الف) $y = \sqrt{\frac{x^2-1}{x^2-x}} \Rightarrow \frac{x^2-1}{x^2-x} \geq 0$	ب) $\sqrt{\frac{x^2-1}{x^2-5x+6}} \Rightarrow \frac{x^2-1}{x^2-5x+6} \geq 0$	۴
$\Rightarrow \frac{(x-1)(x+1)}{x(x-1)(x+1)} \Rightarrow \frac{x+1}{x} \geq 0$	$\Rightarrow \frac{(x-1)(x+1)}{(x-1)(x-2)(x-3)} \geq 0 \Rightarrow \frac{x+1}{x-1} \geq 0$	
$\Rightarrow x < -1$ یا $x > 0$ $\frac{x}{+ \quad - \quad - \quad +}$	$\Rightarrow x \leq -1$ یا $x > 1$	
$\Rightarrow D_f = (-\infty, -1) \cup (0, 1) \cup (1, +\infty)$	$\Rightarrow D_f = (-\infty, -1] \cup (1, 2) \cup (3, +\infty)$	
الف) $y = \sqrt{4-x} - \sqrt{2-x}$ ۱) $4-x \geq 0$	ب) $y = \sqrt{4-x} - \sqrt{2-x}$ ۱) $4-x \geq 0$	۵
$\Rightarrow x \leq 4$ ۲) $4-x \geq 0$	$\Rightarrow x \geq 2$ ۲) $4-x \geq 0$	
$\Rightarrow \sqrt{4-x} \leq 4$	$\Rightarrow \sqrt{4-x} \leq 4 \Rightarrow 4-x \leq 16$	
$\Rightarrow 4-x \leq 16 \Rightarrow x \geq -12$	$\Rightarrow x \leq 11$	
$\Rightarrow D_f = [-12, 4]$	$\Rightarrow D_f = [2, 11]$	

$a) y = \sqrt{r - rx^2} \quad r - rx^2 \geq 0$ $\Rightarrow rx^2 \leq r \Rightarrow x^2 \leq 1$ $\Rightarrow D_f = [-1, 1]$	$b) y = \sqrt{r n - 9} \quad r n - 9 \geq 0$ $\Rightarrow r n \geq 9 \Rightarrow n \geq \frac{9}{r}$ $\Rightarrow n \leq -\frac{9}{r} \cup n \geq \frac{9}{r}$ $\Rightarrow D_f = (-\infty, -\frac{9}{r}] \cup [\frac{9}{r}, +\infty)$	6
$a) y = \sqrt{\frac{ n +1}{ n -r}} \quad n -r \neq 0$ $\Rightarrow n \neq r \Rightarrow D_f = \mathbb{R} - \{r, -r\}$ $\Rightarrow n \neq r, -r$ $\Rightarrow D_f = (-\infty, -r) \cup (-r, r) \cup (r, +\infty)$	$b) y = \sqrt{\frac{\sqrt{n}+1}{\sqrt{n}-r}} \Rightarrow \sqrt{n} - r \geq 0$ $\Rightarrow \sqrt{n} - r \neq 0 \Rightarrow \sqrt{n} \neq r \Rightarrow n \neq r^2$ $\Rightarrow D_f = [0, r^2) \cup (r^2, +\infty)$	7
$a) y = \frac{\sin x}{r \cos x - 1} \Rightarrow r \cos x - 1 \neq 0 \Rightarrow \cos x \neq \frac{1}{r} \Rightarrow x \neq 2k\pi \pm \frac{\pi}{r}$ $\Rightarrow D_f = \mathbb{R} - \{2k\pi \pm \frac{\pi}{r} \mid k \in \mathbb{Z}\}$	$b) r \sin x + 1 \neq 0 \Rightarrow x \neq 2k\pi + \frac{\pi}{r}, x \neq 2k\pi + \frac{3\pi}{r} \Rightarrow D_f = \mathbb{R} - \{2k\pi + \frac{\pi}{r}, 2k\pi + \frac{3\pi}{r} \mid k \in \mathbb{Z}\}$	8
$c) \cos x \neq 0 \Rightarrow \cos x - 1 \neq 0 \Rightarrow \cos x \neq 1 \Rightarrow x \neq 2k\pi$ $\Rightarrow x \neq \frac{2k\pi}{r} \Rightarrow D_f = \mathbb{R} - \{\frac{2k\pi}{r} \mid k \in \mathbb{Z}\}$	$d) r \sin^2 x - r \neq 0 \Rightarrow \sin^2 x \neq \frac{r}{r} \Rightarrow \sin x \neq \pm \frac{\sqrt{r}}{r}$ $\Rightarrow x \neq \frac{\pi}{2}, \frac{3\pi}{2}, \frac{5\pi}{2}, \frac{7\pi}{2} \Rightarrow D_f = \mathbb{R} - \{2k\pi + \frac{\pi}{2}, 2k\pi + \frac{3\pi}{2}, 2k\pi + \frac{5\pi}{2}, 2k\pi + \frac{7\pi}{2} \mid k \in \mathbb{Z}\}$	9
$y = \frac{1}{\sqrt{r x-r - \frac{1}{r}}} \Rightarrow r x-r - \frac{1}{r} > 0 \Rightarrow r x-r > \frac{1}{r} \Rightarrow x-r > \frac{1}{r^2}$ $\Rightarrow x-r < -\frac{1}{r^2} \Rightarrow x < \frac{r-1}{r^2} \cup x-r > \frac{1}{r^2} \Rightarrow x > \frac{r+1}{r^2}$ $\Rightarrow D_f = (-\infty, \frac{r-1}{r^2}) \cup (\frac{r+1}{r^2}, +\infty)$		
$a) y = \sqrt{r - r n }$ $\Rightarrow r - r n \geq 0 \Rightarrow r n \leq r$ $\Rightarrow n \leq 1$ $\Rightarrow D_f = [-1, 1]$	$b) \sqrt{\frac{ n }{ n }} \Rightarrow n \neq 0$ $\Rightarrow n \neq 0, \frac{ n }{ n } = 1$ $\Rightarrow D_f = \mathbb{R} - \{0\}$ $\Rightarrow D_f = (-\infty, 0) \cup (0, +\infty)$	10

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