

الف)	ب)	ج)	د)	1
الف) $(x-1)(x-2) > 0$ ب) $(x-1)(x-2) < 0$ ج) $(x+1)(x+2) > 0$ د) $(x-1)(x-2) < 0$	$\frac{1}{+} \frac{2}{-} \frac{2}{+}$ $\frac{1}{+} \frac{0}{-} \frac{2}{+}$ $\frac{-1}{+} \frac{-1}{-} \frac{2}{+}$ $\frac{1}{+} \frac{2}{-} \frac{2}{+}$	$x \leq -2$ or $x \geq 2$ $-1 < x < 2$ $x \geq -1$ or $x \leq -2$ $-1 < x \leq 2$	$(-\infty, -2) \cup (2, +\infty)$ $(-1, 2)$ $(-\infty, -1] \cup [2, +\infty)$ $[-1, 2]$	
الف) $\frac{(x-1)(x-2)}{x-0} < 0$ ب) $\frac{(x-1)(x-2)}{(x-1)(x-2)} > 0$	$\frac{1}{-} \frac{2}{+} \frac{0}{-}$ $\frac{-1}{+} \frac{+}{-} \frac{0}{-}$	$-1 < x < 0$ or $x < -1$ $x > 0$ or $x \leq -1$	$(-\infty, -1) \cup (0, +\infty)$ $(-\infty, -1] \cup (0, +\infty)$	
الف) $y = \sqrt{\frac{(x-1)(x+2)}{x(x-1)(x+1)}}$ ب) $y = \sqrt{\frac{(x-1)(x+2)}{(x-1)(x-2)}}$	$\frac{-1}{+} \frac{0}{-} \frac{+}{+}$ $\frac{-1}{+} \frac{1}{-} \frac{+}{+}$	$0 < x < 1$ or $x > 1$ $0 < x < 1$ or $x > 1$	$(0, 1) \cup (1, +\infty)$ $(0, 1) \cup (1, +\infty)$	
الف) $x > 0 \rightarrow x \leq 2$ ب) $x < 0 \rightarrow x \geq 2$	$\sqrt{x} > 0 \rightarrow 1 > x \rightarrow x \leq 1$ $\sqrt{x^2} > 0 \rightarrow 1 > x^2 \rightarrow 1 > x$	$x > 0 \rightarrow x \leq 2$ $x < 0 \rightarrow x \geq 2$	$[0, 2]$ $[2, +\infty)$	5

ا) $x > 0 \rightarrow x > 0 \vee x < -1 \Rightarrow D_f = [-\sqrt{2}, \sqrt{2}]$ ب) $x = 1 \rightarrow x = 1 \vee x = -1 \Rightarrow D_f = \{1, -1\}$ $x \geq 1$ $x \leq -1$	6
ا) $x = 1 \rightarrow x = 1 \vee x = -1 \Rightarrow D_f = \mathbb{R} - \{1, -1\}$ ب) $x > 0, \sqrt{x} = 1 \rightarrow x = 1 \Rightarrow D_f = [0, +\infty) - \{1\}$ Ⓟ ✓	7
ا) $\cos x \neq 0 \rightarrow \cos x \neq \pm \frac{1}{2} \Rightarrow x \neq k\pi \pm \frac{\pi}{3} \Rightarrow D_f = \mathbb{R} - \{k\pi \pm \frac{\pi}{3}\}$ ب) $\sin x \neq 0 \rightarrow \sin x \neq \pm \frac{1}{2} \Rightarrow x \neq k\pi + \frac{\pi}{6}, k\pi + \frac{5\pi}{6} \Rightarrow D_f = \mathbb{R} - \{k\pi + \frac{\pi}{6}, k\pi + \frac{5\pi}{6}\}$ ج) $\sin x \neq 0, \cos x \neq 0 \Rightarrow \sin x \neq \cos x \Rightarrow D_f = \mathbb{R} - \{k\pi, k\pi + \frac{\pi}{4}\}$ د) $\sin x \neq 1 \rightarrow \sin x \neq \pm 1 \Rightarrow D_f = \mathbb{R} - \{k\pi + \frac{\pi}{2}, k\pi + \frac{3\pi}{2}\}$	8
$x-1 = \frac{1}{x} > 0 \Rightarrow x-1 > \frac{1}{x} \rightarrow x > \frac{1}{x-1} \rightarrow x > \frac{1}{x-1} \rightarrow x > \frac{1}{x-1} \rightarrow x > \frac{1}{x-1} \rightarrow x > \frac{1}{x-1}$ $\Rightarrow D_f = (\frac{1}{2}, \infty) \cup (-\infty, \frac{1}{2})$ Ⓟ ✓	9
ا) $x > 0 \rightarrow x > 0 \vee x < -1 \Rightarrow D_f = [-1, 1]$ ب) $\frac{ x }{ x } = 1 \rightarrow 1 \neq 0 \rightarrow x \neq 0 \Rightarrow D_f = \mathbb{R} - \{0\}$ Ⓟ ✓	10