

نام و نام خانوادگی: پاسخنامه تشریحی تکلیف شماره ۶ کلاس:
 نام و نام خانوادگی: پاسخنامه تشریحی تکلیف شماره ۶ کلاس:

الف) $\frac{x^2-4x}{x^3-x} \geq 0 \rightarrow \frac{x(x-4)}{x(x^2-1)} \geq 0$ $\left \begin{array}{c} -1 \quad * \quad 1 \quad 4 \\ -\frac{1}{x} + \frac{1}{x} - \frac{1}{x} + \frac{4}{x} \end{array} \right$ $x^3-x \neq 0$ $x(x^2-1) \neq 0 \rightarrow x(x-1)(x+1) \neq 0$ $D_f = (-1, 0) \cup (0, 1) \cup [4, +\infty)$ ب) $\frac{x^5-x^3}{x^3-x} \geq 0 \rightarrow \frac{x^3(x^2-1)}{x(x^2-1)} \geq 0$ $\left \begin{array}{c} * \quad * \quad * \\ -1 \quad 0 \quad 1 \\ +\frac{1}{x} + \frac{1}{x} + \frac{1}{x} \end{array} \right \rightarrow D_f = \mathbb{R} - \{-1, 0, 1\}$	۱
الف) $x+ x \geq 0 \rightarrow \begin{cases} x > 0 : 2x \checkmark \\ x = 0 : 0 \times \\ x < 0 : 0 \times \end{cases} \rightarrow D_f = (0, +\infty) = \mathbb{R}^+$ ب) $x x \geq 0 \rightarrow \begin{cases} x > 0 : \oplus \checkmark \\ x = 0 : 0 \times \\ x < 0 : \ominus \times \end{cases} \rightarrow D_f = (0, +\infty) = \mathbb{R}^+$	۲
الف) $1-[x] \geq 0 \rightarrow [x] \leq 1 \rightarrow x < 2 \rightarrow D_f = (-\infty, 2)$ ب) $1-[x] > 0 \rightarrow [x] < 1 \rightarrow D_f = (-\infty, 1)$	۳
الف) $[x - \frac{1}{y}] + [x + \frac{y}{y}] \geq 0 \rightarrow x \geq \frac{1}{y} \rightarrow D_f = [\frac{1}{y}, +\infty]$ ب) $[x - \frac{1}{y}] + [-x + \frac{1}{y}] \geq 0 \rightarrow t = x - \frac{1}{y} \rightarrow [t] + [-t] \rightarrow t \in \mathbb{Z}$ $x - \frac{1}{y} \in \mathbb{Z} \rightarrow D_f = \{n + \frac{1}{y} \mid n \in \mathbb{Z}\}$	۴
الف) $\sin x - 1 \neq 0 \rightarrow \sin x \neq 1 \rightarrow D_f = \mathbb{R} - \{2k\pi + \frac{\pi}{2}\}$ ب) $1 - \sin^2 x \neq 0 \Rightarrow 1 - \sin^2 x \neq 1 \rightarrow \sin^2 x \neq \frac{1}{4} \rightarrow \sin x \neq \pm \frac{\sqrt{1}}{2}$ $D_f = \mathbb{R} - \{\frac{k\pi}{2} + \frac{\pi}{4}\}$	۵

$r \sin x - 1 \geq 0 \rightarrow r \sin x \geq 1 \rightarrow \sin x \geq \frac{1}{r}$ $\rightarrow D_f = \left\{ 2k\pi + \frac{\pi}{r}, 2k\pi + \frac{5\pi}{r} \right\}$ ب) $\cos x - 1 \geq 0 \rightarrow \cos x \geq 1 \rightarrow D_f = \{ 2k\pi \}$	٦
الف) $-1 \leq x - 3 \leq 1 \rightarrow 2 \leq x \leq 4 \rightarrow D_f = [-4, -2] \cup [2, 4]$ ب) $-1 \leq x^2 + 3x + 1 \leq 1$ $-1 \leq x^2 + 3x + 1 \rightarrow x^2 + 3x + 2 \geq 0 \rightarrow (x+1)(x+2) \geq 0$ $x^2 + 3x + 1 \leq 1 \rightarrow x^2 + 3x \leq 0 \rightarrow x(x+3) \leq 0$ $D_f = [-3, -1] \cup [-1, 0]$	٧
الف) $r - \log_3(x-2) \geq 0 \rightarrow \begin{cases} \log_3(x-2) \leq r \rightarrow x-2 \leq 9 \rightarrow x \leq 11 \\ x-2 > 0 \rightarrow x > 2 \end{cases} \rightarrow D_f = (2, 11]$ ب) $x^3 - x > 0 \rightarrow x(x^2 - 1) > 0 \rightarrow x(x-1)(x+1) > 0$ $D_f = (-1, 0) \cup (1, +\infty)$	٨
الف) $r^x + 1 \neq 0 \rightarrow r^x \neq -1 \rightarrow D_f = \mathbb{R}$ <i>هو دالة برقرار</i> ب) $r^x - 1 \neq 0 \rightarrow r^x \neq 1 \rightarrow D_f = \mathbb{R} - \{0\}$ ج) $r^x - 2 \neq 0 \rightarrow r^x \neq 2 \rightarrow \log_r 2 \neq x \rightarrow D_f = \mathbb{R} - \{\log_r 2\}$ د) $r^x - 3 \neq 0 \rightarrow r^x \neq 3 \rightarrow \log_r 3 \neq x \rightarrow D_f = \mathbb{R} - \{\log_r 3\}$	٩
الف) $r^{x+1} \in W \rightarrow r^x \in W - 1 \rightarrow x \in \frac{W-1}{r}$ $D_f = \left\{ x \mid x = \frac{k-1}{r}, k \in W \right\}$ ب) $\frac{r^x - r}{r^x - \Delta} \in W \rightarrow r^x - r \in r^x W - \Delta W \rightarrow r^x - r^x W \in r - \Delta W$ $x(r - r^x W) \in r - \Delta W \rightarrow x \in \frac{r - \Delta W}{r - r^x W} \rightarrow D_f = \left\{ x \mid x = \frac{r - \Delta k}{r - r^k}, k \in W \right\}$	١٠