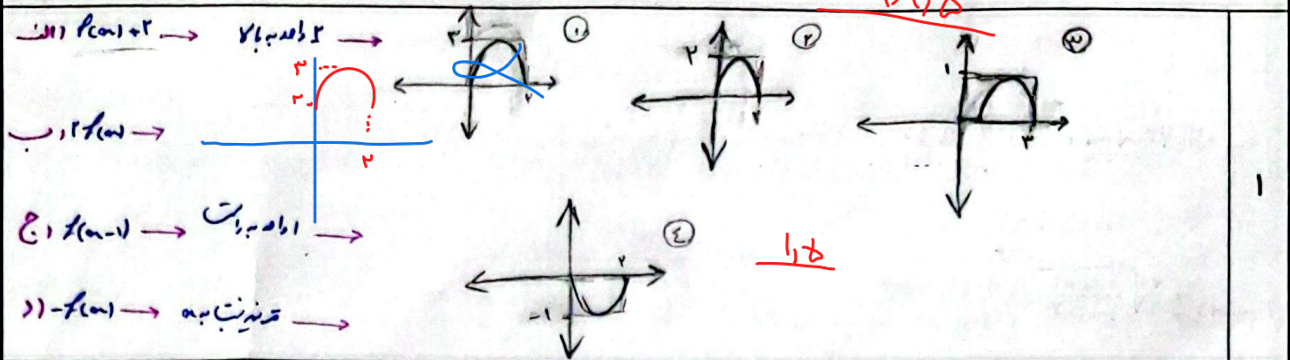


نام و نام خانوادگی: اینجانب: پاسخنامه تشریحی تکلیف شماره ۵ کلاس: هم‌زمان: ۱۳۹۷



الف $x^2 - 5x + 4 > 0 \Rightarrow (x-2)(x-4) > 0$ $x < 2$ یا $x > 4$ $D_f = (-\infty, 2) \cup (4, \infty)$

ب $x^2 - 4x + 5 < 0 \Rightarrow (x-1)(x-5) < 0$ $1 < x < 5$ $D_f = (1, 5)$

ج $x^2 + 4x + 5 > 0 \Rightarrow (x+1)(x+5) > 0$ $x \leq -5$ یا $x > -1$ $D_f = (-\infty, -5] \cup (-1, \infty)$

د $x^2 - 7x + 4 < 0 \Rightarrow (x-1)(x-4) < 0$ $1 < x < 4$ $D_f = (1, 4)$ ✓

الف $\frac{x^2 - 5x + 2}{x - 5} < 0$ $\frac{(x-1)(x-2)}{x-5} < 0$ $D_f = (-\infty, 1) \cup (2, 5)$ ✓

ب $\frac{x^2 - 1}{x^2 - 4x + 5} > 0$ $\frac{(x-1)(x+1)}{(x-1)(x-5)} > 0$ $x > 5$ یا $x \leq -1$ ✓

الف $y = \sqrt{\frac{x^2 - 1}{x^2 - x}} \Rightarrow \frac{x^2 - 1}{x^2 - x} > 0$ $\frac{(x-1)(x+1)}{x(x-1)(x+1)} > 0$ $D_f = (-\infty, -1) \cup (1, 1) \cup (1, +\infty)$ ✓

ب $y = \sqrt{\frac{x^2 - 4}{x^2 - 5x + 2}} \Rightarrow \frac{(x-2)(x+2)}{(x-1)(x-2)} > 0$ $\Rightarrow x \neq 1, x \neq 2$ $\frac{x+2}{x-1} > 0$ $D_f = (-\infty, -2] \cup (1, 2) \cup (2, \infty)$ ✓

الف $y = \sqrt{2 - \sqrt{2 - x}} \Rightarrow 2 - \sqrt{2 - x} \geq 0$ $\boxed{x \leq 2}$ $D_f = [-2, 2]$

ب $y = \sqrt{2 - \sqrt{2 - x}} \Rightarrow 2 - \sqrt{2 - x} \geq 0$ $\boxed{x \leq 2}$ $D_f = [-2, 2]$ ✓

$\hookrightarrow y = \sqrt{2-r^2} \Rightarrow 2-r^2 \geq 0 \quad r^2 \leq 2 \quad -\sqrt{2} \leq r \leq \sqrt{2} \quad D_f = [-\sqrt{2}, \sqrt{2}]$ (P) ✓	6
$\hookrightarrow y = \sqrt{ m -1} \Rightarrow r m -1 \geq 0 \quad r m \geq 1 \quad m \geq \frac{1}{r} \quad m \leq -\frac{1}{r} \vee m \geq \frac{1}{r}$ $D_f = (-\infty, -\frac{1}{r}] \cup [\frac{1}{r}, \infty)$	7
$\hookrightarrow y = \sqrt{\frac{ m +1}{ m -1}} \Rightarrow \frac{ m +1}{ m -1} \geq 0 \quad m \neq 1 \rightarrow m \neq \pm 1 \quad D_f = \mathbb{R} - \{-1, 1\}$ (P) ✓	8
$\hookrightarrow y = \sqrt{\frac{r+m}{r-m}} \Rightarrow \frac{r+m}{r-m} \geq 0 \quad r-m \neq 0 \rightarrow r \neq m \rightarrow m \neq r$ $D_f = [0, r) \cup (r, \infty)$	9
$\hookrightarrow y = \frac{2 \tan \alpha}{1 + \cos \alpha} \Rightarrow r \cos \alpha - 1 \neq 0 \quad \cos \alpha \neq \frac{1}{r} \quad D_f = \mathbb{R} - \{k\pi \pm \frac{\pi}{2} : k \in \mathbb{Z}\}$ $\hookrightarrow y = \frac{\cos \alpha + 1}{1 + \sin \alpha} \Rightarrow r \sin \alpha + 1 \neq 0 \quad \sin \alpha \neq -\frac{1}{r} \quad D_f = \mathbb{R} - \{k\pi + \frac{\pi}{2}, k\pi + \frac{3\pi}{2}\}$ $\hookrightarrow y = \frac{\tan \alpha + r}{1 + \cos \alpha} \Rightarrow m \neq k\pi + \frac{\pi}{2} \quad m \neq k\pi \quad \hookrightarrow \cot \alpha \neq 0 \quad \cot \alpha \neq 0 \quad m \neq k\pi + \frac{\pi}{2}$ $D_f = \mathbb{R} - \{k\pi, k\pi + \frac{\pi}{2}, k\pi + \frac{3\pi}{2}\}$ $\hookrightarrow y = \frac{\sin \alpha + 1}{1 + \sin \alpha} \Rightarrow 1 + \sin \alpha - r \neq 0 \quad \sin \alpha \neq \frac{r}{1} \quad \sin \alpha \neq \pm \frac{r}{1} \quad \alpha = \frac{\pi}{2}, \frac{3\pi}{2}, \frac{5\pi}{2}, \frac{7\pi}{2}, \dots$ $D_f = \mathbb{R} - \{\pm \frac{\pi}{2} + k\pi : k \in \mathbb{Z}\}$	10
$y = \frac{1}{\sqrt{r m-1 -\frac{1}{r}}} \Rightarrow r m-1 - \frac{1}{r} > 0 \quad r m-1 > \frac{1}{r} \quad m-1 > \frac{1}{r^2}$ $m-1 < -\frac{1}{r^2} \vee m-1 > \frac{1}{r^2} \Rightarrow m < 1 - \frac{1}{r^2} \vee m > 1 + \frac{1}{r^2}$ $D_f = (-\infty, 1 - \frac{1}{r^2}) \cup (1 + \frac{1}{r^2}, \infty)$ (P) ✓	11
$\hookrightarrow y = \sqrt{2-r m } \Rightarrow 2-r m \geq 0 \quad m \leq \frac{2}{r} \quad D_f = [-\frac{2}{r}, \frac{2}{r}]$ (P) ✓	12
$\hookrightarrow y = \sqrt{\frac{ m }{ m +1}} \Rightarrow \frac{ m }{ m +1} \geq 0 \quad m \neq 0 \quad D_f = \mathbb{R} - \{0\}$	13