نام و نام خانوادگی ....عباسی.......... پاسخنامه تشریحی تکلیف شماره .... کلاس ....پنجشنبه..........

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الف) $x+4=0$, $\boxed{x=-4}$

$$\frac{x+4}{4x^3-20x^2+31x-15}$$

$4x^3-20x^2+31x-15 \div (x-1) = 4x^2-16x+15$

$-4x^3+4x^2$; $-16x^2+31x-15$; $16x^2-16x$; $15x-15$; $-15x+15$; 0

$x^2-16x+4(15) = (x-6)(x-10)$ ریشه‌ها: $\frac{6}{4}=\frac{3}{2}$ ، $\frac{10}{4}=\frac{5}{2}$

$$\frac{x+4}{(x-1)(x-\frac{3}{2})(x-\frac{5}{2})}$$

$\Rightarrow D_f = R-\{1, \frac{3}{2}, \frac{5}{2}\}$ ← جواب

ب) $3x^3-x^2-8x-4 \div (x+1) = 3x^2-4x-4$

$-3x^3-3x^2$; $-4x^2-8x-4$; $+4x^2+4x$; $-4x-4$; $4x+4$; 0

$x^2-4x+3(-4) = (x-6)(x+2)$ ریشه‌ها: 2 ، $-\frac{2}{3}$

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

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الف) $3-2x \geq 0 \to x \leq \frac{3}{2}$

$x-\sqrt{3-2x} \neq 0 \to x \neq \sqrt{3-2x} \Rightarrow x^2 \neq 3-2x \to (x+3)(x-1) \neq 0$ ($x=-3$, $x=1$) $\to D_f = (-\infty, \frac{3}{2}] - \{1\}$

ب) $3x-2 \geq 0 \to x \geq \frac{2}{3}$

$x-\sqrt{3x-2} \neq 0 \to x \neq \sqrt{3x-2} \to x^2 \neq 3x-2 \to (x-1)(x-2) \neq 0$ ($x=1$, $x=2$)

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

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الف) $2\cos x - 1 \neq 0 \to \cos x \neq \frac{1}{2} \to D_f = R - \{2k\pi \pm \frac{\pi}{3}\}$

ب) $2\sin x + 1 \neq 0 \to \sin x \neq -\frac{1}{2} \to D_f = R - \{2k\pi - \frac{\pi}{6}, 2k\pi + \frac{7\pi}{6}\}$

ج) $\cos x \neq 0$, $\sin x \neq 0$, $\cot x - 1 \neq 0 \to \cot x \neq 1$ $\Big\}$ $D_f = R - \{\frac{k\pi}{2}, k\pi + \frac{\pi}{4}\}$

د) $4\sin^2 x - 3 \neq 0 \to \sin^2 x \neq \frac{3}{4} \to \sin x \neq \pm\frac{\sqrt{3}}{2} \to D_f = R - \{k\pi + \frac{\pi}{3}, k\pi + \frac{2\pi}{3}\}$

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الف) $x^2-5x+6>0 \to (x-2)(x-3)>0$ ($x=2$, $x=3$; $+ \ - \ +$) $\to D_f = (-\infty, 2) \cup (3, +\infty)$

ب) $x^2-6x+5<0 \to (x-1)(x-5)<0$ ($x=1$, $x=5$; $+ \ - \ +$) $\to D_f = (1, 5)$

ج) $x^2+6x+5 \geq 0 \to (x+1)(x+5) \geq 0$ ($x=-1$, $x=-5$; $+ \ - \ +$) $\to D_f = (-\infty, -5] \cup [-1, +\infty)$

د) $x^2-7x+6 \leq 0 \to (x-1)(x-6) \leq 0$ ($x=1$, $x=6$; $+ \ - \ +$) $\to D_f = [1, 6]$

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

ب) $\frac{(x-1)(x+1)}{(x-1)(x-5)} \geq 0$ ($x=1$, $x=-1$, $x=5$; $+ \ - \ - \ +$) $\to D_f = (-\infty, -1] \cup (5, +\infty)$

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الف) $\frac{x^2-4x+3}{x^2-1} \geq 0 \rightarrow \frac{(x-1)(x-3)}{(x-1)(x+1)} \geq 0 \rightarrow$ (نمودار تعیین علامت) $\rightarrow D_f = [3, +\infty)$

ب) $x^2-1 \neq 0 \rightarrow x^2 \neq 1 \rightarrow x \neq \pm 1 \rightarrow D_f = R - \{\pm 1\}$

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الف) $x^2-3x > 0 \rightarrow x(x-3) > 0$ (نمودار تعیین علامت) $\rightarrow D_f = (-\infty, 0) \cup (3, +\infty)$

ب) ① $16 - x^2 > 0 \rightarrow x^2 < 16 \rightarrow -4 < x < 4$

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

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

$\left.\begin{array}{l}\end{array}\right\} D_f = (-4, -2) \cup (2, 4) - \{\pm 3\}$

ج) ① $\frac{x^2-7x+12}{x-3} > 0 \rightarrow \frac{(x-4)(x-3)}{x-3} > 0$ (نمودار تعیین علامت)

② $10 - x > 0 \rightarrow x < 10$

③ $10 - x \neq 1 \rightarrow x \neq 9$

$\left.\begin{array}{l}\end{array}\right\} D_f = (4, 10) - \{9\}$

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د) ① $x^2 - 11x + 28 \geq 0 \rightarrow (x-7)(x-4) \geq 0$ (نمودار تعیین علامت)

② $24 - x^2 > 0 \rightarrow x^2 < 24 \rightarrow -4\sqrt{6} < x < 4\sqrt{6}$

③ $x \neq 1$ ④ $x > 0$

$\left.\begin{array}{l}\end{array}\right\} D_f = (0, 4\sqrt{6}] - \{1\}$

سریع

$x(x-1)$ (نمودار تعیین علامت)

آبارشانی

	-1	0	1
x^2-x	+	+ 0	− 0 +
x^2+x	+ 0	− 0	+ +
$P(x)$	+ ∄	− ∄	− 0 +

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$\frac{x-f(x)}{f(x)} \geq 0$ (نمودار تعیین علامت)

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

$f(x) \neq 0 \rightarrow x \neq \pm 2$

$\left.\begin{array}{l}\end{array}\right\} D_f = (-2, -1] \cup (2, 3]$

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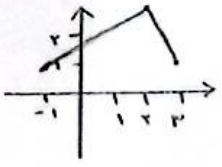
الف)



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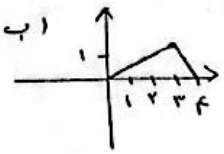

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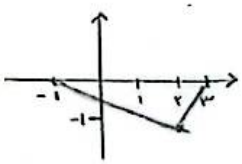

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