

۱۸,۲۵

نام و نام خانوادگی پاسخنامه تشریحی تکلیف شماره ۴ کلاس
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الف) $x^3 - 10x^2 + 31x - 15 \neq 0 \rightarrow (x-5)(x-3)(x-1) \rightarrow R - \left\{ \frac{5}{3}, \frac{3}{2}, 1 \right\}$

ب) $3x^3 - x^2 - 11x - 4 \rightarrow (x+1)(3x^2 - 4x - 4) \rightarrow R - \left\{ -1, -\frac{2}{3}, -\frac{2}{3} \right\}$

الف) $\sqrt{3-2x} \geq 0 \rightarrow 3-2x \geq 0 \rightarrow 3 \geq 2x \rightarrow x \leq \frac{3}{2} \rightarrow D_f = \left\{ x \leq \frac{3}{2} \right\}$

$x - \sqrt{3-2x} \neq 0 \rightarrow x \neq \sqrt{3-2x} \rightarrow x^2 \neq 3-2x \rightarrow x \neq 1$

ب) $\sqrt{3x-2} \geq 0 \rightarrow 3x-2 \geq 0 \rightarrow 3x \geq 2 \rightarrow x \geq \frac{2}{3} \rightarrow D_f = \left\{ x \geq \frac{2}{3} \right\}$

$x - \sqrt{3x-2} \neq 0 \rightarrow x \neq \sqrt{3x-2} \rightarrow x^2 \neq 3x-2 \rightarrow x \neq 1, 2$

الف) $2(\cos x - 1) \neq 0 \rightarrow 2\cos x \neq 1 \rightarrow \cos x \neq \frac{1}{2} \rightarrow D_f = R - \left\{ 2k\pi - \frac{\pi}{3}, 2k\pi + \frac{\pi}{3} \right\}$

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

ج) $\cot = \frac{\cos}{\sin} \rightarrow \cot x \neq 0 \rightarrow \cot x \neq 1 \rightarrow \cos \neq 0, \sin \neq 0 \rightarrow D_f = R - \left\{ \frac{k\pi}{2}, \frac{k\pi}{2} \right\}$

$f \sin^2 x - 3 \neq 0 \rightarrow f \sin^2 x \neq 3 \rightarrow \sin^2 x \neq \frac{3}{f} \rightarrow \sin x \neq \pm \sqrt{\frac{3}{f}} \rightarrow D_f = R - \left\{ k\pi - \frac{\pi}{4}, k\pi + \frac{\pi}{4} \right\}$

الف) $x^2 - 5x + 6 > 0 \rightarrow (x-3)(x-2) > 0 \rightarrow \frac{+}{-} \frac{+}{-} \frac{+}{+} \rightarrow D_f = (-\infty, 2) \cup (3, +\infty)$

ب) $x^2 - 6x + 5 < 0 \rightarrow (x-5)(x-1) < 0 \rightarrow \frac{+}{+} \frac{-}{-} \frac{+}{+} \rightarrow D_f = (1, 5)$

ج) $x^2 + 6x + 5 > 0 \rightarrow (x+5)(x+1) > 0 \rightarrow \frac{+}{+} \frac{+}{+} \frac{+}{+} \rightarrow D_f = (-\infty, -5] \cup [-1, +\infty)$

د) $x^2 - 7x + 6 \leq 0 \rightarrow (x-6)(x-1) \leq 0 \rightarrow \frac{+}{+} \frac{-}{-} \frac{+}{+} \rightarrow D_f = [1, 6]$

الف) $\frac{x^2 - 3x + 2}{x-5} < 0 \rightarrow \frac{(x-1)(x-2)}{x-5} < 0 \rightarrow \frac{+}{+} \frac{+}{-} \frac{+}{+} \rightarrow D_f = (-\infty, 1) \cup (2, 5)$

ب) $\frac{x^2 - 1}{x^2 - 6x + 5} \geq 0 \rightarrow \frac{(x-1)(x+1)}{(x-5)(x+1)} \geq 0 \rightarrow \frac{+}{+} \frac{+}{-} \frac{+}{+} \rightarrow D_f = (-\infty, -1] \cup (5, +\infty)$

$$\sqrt{\frac{x^2-4x+3}{x^2-1}} \geq 0 \quad \frac{(x-3)(x-1)}{x^2-1} \quad \frac{1}{-1} \rightarrow D_f = [3, +\infty) \quad \checkmark$$

(الف) $\sqrt{\frac{x^2-4x+3}{x^2-1}} \geq 0 \rightarrow x^2-1 \neq 0 \rightarrow x \neq 1 \text{ و } x \neq -1$ فقط خارج نباید باشد $\rightarrow D_f = R - \{1, -1\}$ (ب) $\checkmark$

(الف) $x^2-3x > 0 \rightarrow \frac{0}{+} \frac{+}{-} \frac{+}{+} \rightarrow (-\infty, 0) \cup (3, +\infty) \quad \checkmark$ (ب) $\checkmark$

(الف) $14-x^2 > 0 \rightarrow (x+4)(x-4) > 0 \rightarrow \frac{-4}{+} \frac{+4}{-} \rightarrow (-4, 4) \quad \checkmark$
 $|x| > 2 \rightarrow x > 2 \text{ و } x < -2 \rightarrow |x| - 2 \neq 1 \rightarrow |x| \neq 3 \rightarrow x \neq 3 \text{ و } x \neq -3$
 $D_f = (-\infty, -2) \cup (2, +\infty) - \{3, -3\}$
 $D_f = (-\infty, -2) \cup (2, +\infty) - \{\pm 3\}$ قسمت ج پایین معنی $\checkmark$

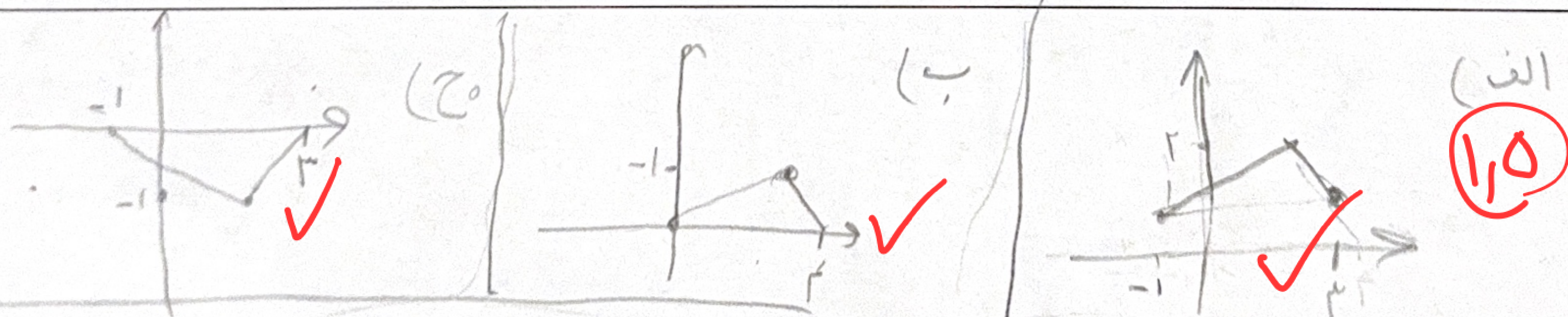
روشن سبز (روشن آبی آسمانی) $\frac{x^2-x}{x^2+x} \rightarrow \frac{-1}{+} \frac{0}{-} \frac{+}{+}$ $\checkmark$

	-	0	+
x^2-x	+	0	+
x^2+x	+	0	+
(x)	+	-	+

$\checkmark$

(الف) $\frac{x-f(x)}{f(x)} \rightarrow \frac{-2}{+} \frac{-1}{-} \frac{2}{+} \frac{3}{-} \rightarrow (-\infty, -2) \cup [1, 2) \cup [3, +\infty)$
 $D_f = [-2, -1] \cup (2, 3] \quad \checkmark$

سوال ۷ بخش د $x^2-11x+28 \rightarrow (x-7)(x-4) \rightarrow \frac{4}{+} \frac{7}{-} \rightarrow x \neq 1 \text{ و } x > 0 \text{ و } 4-x^2 > 0 \rightarrow 4 > x > -4 \rightarrow D_f = (0, 4] - \{1\} \quad \checkmark$



سوال ۷ بخش ج $10-x \neq 1 \rightarrow x \neq 9$
 $10-x > 0 \rightarrow 10 > x \rightarrow D_f = [4, 10) - \{9\}$

$x^2-7x+12 \rightarrow (x-3)(x-4) \rightarrow \frac{3}{-} \frac{4}{+} \rightarrow \frac{1}{-} \frac{2}{+}$