

الف) $4x^2 + 3x - 1 = 0 \Rightarrow (x-1)(2x-3)(2x-5)$ $D_f = \mathbb{R} - \{1, \frac{3}{2}, \frac{5}{2}\}$
 $(4x^2 - 14x + 15)$
 $x(x-1)$

ب) $3x - 1 = -5 \Rightarrow (x+1)(x-2)(3x+2)$ $D_f = \mathbb{R} - \{-1, 2, -\frac{2}{3}\}$
 $-1 - 5 = -5$

الف) $3x - 2 \geq 0 \Rightarrow 3x \geq 2 \Rightarrow x \geq \frac{2}{3}$ (الف)
 $x - \sqrt{3x-2} \neq 0$
 $\rightarrow x = \sqrt{3x-2} \rightarrow x^2 = 3x-2 \rightarrow x^2 - 3x + 2 = 0 \rightarrow (x-2)(x-1) = 0$
 $D_f = \{x | x \leq \frac{2}{3}, x \neq 1\}$

ب) $3x - 2 \geq 0 \rightarrow 3x \geq 2 \rightarrow x \geq \frac{2}{3}$ (ب)
 $x - \sqrt{3x-2} \neq 0$
 $\rightarrow x = \sqrt{3x-2} \rightarrow x^2 = 3x-2$
 $x^2 - 3x + 2 = 0 \rightarrow (x-2)(x-1) = 0$
 $D_f = \{x | x \geq \frac{2}{3}, x \neq 2, 1\}$

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

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

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

د) $x^2 - 11x + 18 \geq 0$ $\sqrt{36-4x^2} \geq 0$
 $(x-6)(x-3) \geq 0$ $-6 \leq x \leq 6$ $\rightarrow D_f = (0, 1) \cup (1, 6]$

الف) $\frac{x^2(x-1)}{x(x+1)}$
 $(0, -1)$

x	-	-	0	+	+
x	-	-	0	+	+
$x-1$	-	-	-	0	+
$x+1$	-	0	+	+	+
$f(x)$	+	-	-	-	+

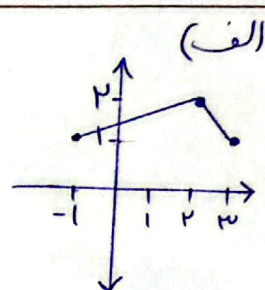
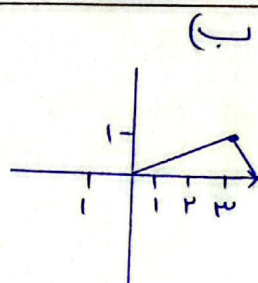
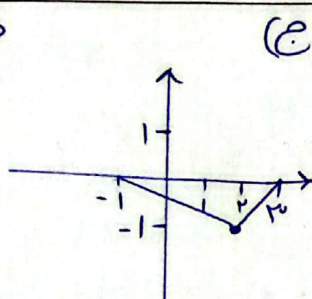
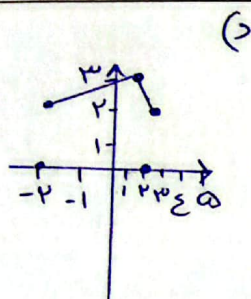
$\frac{-1}{+} \frac{0}{-} \frac{1}{-} \Rightarrow (-\infty, -1) \cup [1, +\infty)$

ب) $\frac{14x^2}{|x|-2} > 0 \rightarrow \frac{(x-2)(x+2)}{|x|-2} > 0 \rightarrow 2 < |x| < 4$
 $\rightarrow D_f = (-4, -2) \cup (2, 4)$

$$\frac{x - f(x)}{f(x)} \geq 0 \quad x = f(x) > 0$$

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$$D_f = (1, 3]$$



$$f(x) = \sqrt{x^3 - 2x} \rightarrow x^3 - 2x \geq 0 \rightarrow x(x^2 - 2) \geq 0$$

$$D_{f(x)} = [-\sqrt{2}, 0] \cup [\sqrt{2}, +\infty)$$

$\pm\sqrt{2}$ $-\sqrt{2}$ 0 $\sqrt{2}$
 $-$ $+$ $-$ $+$

$$g(x) = \sqrt{x} \sqrt{x^2 - 2} \rightarrow x \geq 0 \quad D_{g(x)} = [\sqrt{2}, +\infty)$$

$$f(x) \neq g(x) \quad x^2 - 2 \geq 0 \rightarrow x^2 \geq 2 \rightarrow x \geq \sqrt{2}$$

$$f(x) = [\sqrt{x} - \lfloor \sqrt{x} \rfloor] \rightarrow x \geq 0$$

$$x' - x = 0 \Rightarrow f(x) = 0$$

$$g(x) = \sqrt{x - |x|} \rightarrow x \geq 0 \quad f(x) = g(x)$$

$$x' - x = 0 \Rightarrow g(x) = 0$$

$f(x)$:

$x > 0, x = 0 \Rightarrow \sqrt{x^2} = x$

$x < 0 \Rightarrow \sqrt{(-x)^2} = |x|$

$g(x) = x \quad x \neq |x|$

$g(x) \neq f(x)$

الف) نابرابر

ب) برابری

$x > 0 \quad g(x) = 1 \quad f(x) = 1$

$x < 0 \quad g(x) = -1 \quad f(x) = -1$

$g(x) = f(x)$

صفر تعریف نشده است.