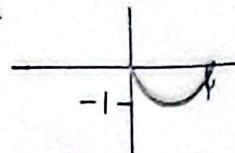
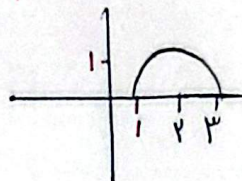
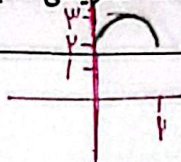
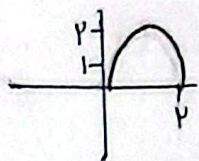


الف) $f(x) + 2$

ب) $2f(x)$

ج) $f(x-1)$

د) $-f(x)$



الف) $x^2 - 5x + 6 > 0 \Rightarrow (x-3)(x-2) > 0$ $\frac{x}{\begin{array}{c|cc|} 3 & 2 & \\ \hline + & - & + \end{array}} \quad (-\infty, 2] \cup [3, +\infty)$

ب) $x^2 - 6x + 5 < 0 \Rightarrow (x-1)(x-5) < 0$ $\frac{x}{\begin{array}{c|cc|} 1 & 5 & \\ \hline + & - & + \end{array}} \quad [1, 5]$

ج) $x^2 + 6x + 5 \geq 0 \Rightarrow (x+1)(x+5) \geq 0$ $\frac{x}{\begin{array}{c|cc|} -5 & -1 & \\ \hline + & - & + \end{array}} \quad (-\infty, -5] \cup [-1, +\infty)$

د) $x^2 - 7x + 6 \leq 0 \Rightarrow (x-1)(x-6) \leq 0$ $\frac{x}{\begin{array}{c|cc|} 1 & 6 & \\ \hline + & - & + \end{array}} \quad [1, 6]$

الف) $\frac{x^2 - 3x + 2}{x-5} < 0 \Rightarrow \frac{(x-1)(x-2)}{(x-5)} < 0$ $\frac{x}{\begin{array}{c|ccc|} 1 & 2 & 5 & \\ \hline - & + & - & + \end{array}} \quad (-\infty, 1] \cup (2, 5)$

ب) $\frac{x^2 - 1}{x^2 - 6x + 5} \geq 0 \Rightarrow \frac{(x-1)(x+1)}{(x-1)(x-5)} \geq 0$ $\frac{x}{\begin{array}{c|ccc|} -1 & 1 & 5 & \\ \hline + & - & - & + \end{array}} \quad (-\infty, -1] \cup (5, +\infty)$

الف) $y = \sqrt{\frac{x^2 - 1}{x^2 - x}} \Rightarrow \frac{(x-1)(x+1)}{x(x-1)(x+1)} \geq 0 \Rightarrow \frac{1}{x} \geq 0$ $\frac{x}{\begin{array}{c|ccc|} -1 & 0 & 1 & \\ \hline + & - & + & + \end{array}} \Rightarrow (-\infty, -1) \cup (0, 1) \cup (1, +\infty)$

ب) $y = \sqrt{\frac{x^2 - 16}{x^2 - 5x + 4}} \Rightarrow \frac{(x-4)(x+4)}{(x-1)(x-4)} \geq 0$ $\frac{x}{\begin{array}{c|ccc|} -4 & 1 & 4 & \\ \hline + & - & - & + \end{array}} \quad (-\infty, -4] \cup (1, 4) \cup (4, +\infty)$

الف) $y = \sqrt{4 - \sqrt{2-x}}$ $2-x \geq 0 \Rightarrow x \leq 2$ $4 - \sqrt{2-x} \geq 0 \Rightarrow \sqrt{2-x} \leq 4$
 $2-x \leq 16 \Rightarrow x \geq -14 \cap x \leq 2 = [-14, 2]$

ب) $y = \sqrt{3 - \sqrt{x-2}}$ $x-2 \geq 0 \Rightarrow x \geq 2$ $3 - \sqrt{x-2} \geq 0$
 $\sqrt{x-2} \leq 3 \Rightarrow x-2 \leq 9 \Rightarrow x \leq 11 \cap x \geq 2$
 $[2, 11]$

الف) $y = \sqrt{4 - 2x^2}$ $4 - 2x^2 \geq 0 \Rightarrow 2x^2 \leq 4 \Rightarrow x^2 \leq 2$
 $\Rightarrow [-\sqrt{2}, \sqrt{2}]$

ب) $y = \sqrt{3|x| - 9}$ $3|x| - 9 \geq 0 \Rightarrow 3|x| \geq 9 \Rightarrow |x| \geq 3$
 $x \leq -3 \text{ أو } x \geq 3 \Rightarrow (-\infty, -3] \cup [3, +\infty)$

الف) $y = \sqrt[3]{\frac{|x|+1}{|x|-3}}$ $\Rightarrow |x|-3 \neq 0 \Rightarrow |x| \neq 3 \Rightarrow x \neq \pm 3$
 $D = \mathbb{R} - \{\pm 3\}$

ب) $y = \sqrt[3]{\frac{\sqrt{x}+1}{\sqrt{x}-3}}$ $x \geq 0$ و $\sqrt{x}-3 \neq 0 \Rightarrow \sqrt{x} \neq 3 \Rightarrow x \neq 9$
 $[0, 9) \cup (9, +\infty)$

الف) $y = \frac{\sin x}{2\cos x - 1}$ $2\cos x - 1 \neq 0 \Rightarrow 2\cos x \neq 1 \Rightarrow \cos x \neq \frac{1}{2}$
 $D = \mathbb{R} - \{2k\pi \pm \frac{\pi}{3}\}$

ب) $y = \frac{\cos x + 1}{2\sin x + 1}$ $2\sin x + 1 \neq 0 \Rightarrow 2\sin x \neq -1 \Rightarrow \sin x \neq -\frac{1}{2}$
 $D = \mathbb{R} - \{2k\pi + \frac{7\pi}{6}, 2k\pi + \frac{11\pi}{6}\}$

ج) $y = \frac{\tan x + 2}{\cot x - 1}$ $\cot x - 1 \neq 0 \Rightarrow \cot x \neq 1$
 $D = \mathbb{R} - \{k\pi \pm \frac{\pi}{4}\} \Rightarrow D = \{2k\pi + \frac{\pi}{4}, 2k\pi + \frac{5\pi}{4}, 2k\pi + \frac{3\pi}{4}, 2k\pi + \frac{7\pi}{4}\}$

د) $y = \frac{1}{2\sin^2 x - 3}$ $2\sin^2 x - 3 \neq 0 \Rightarrow 2\sin^2 x \neq \frac{3}{2} \Rightarrow \sin^2 x \neq \frac{3}{4} \Rightarrow \sin x \neq \pm \frac{\sqrt{3}}{2}$

هـ) $y = \frac{1}{\sqrt{2|x-2| - \frac{1}{2}}}$ $\Rightarrow 2|x-2| - \frac{1}{2} > 0 \Rightarrow 2|x-2| > \frac{1}{2} \Rightarrow |x-2| > \frac{1}{4}$
 $|x-2| > \frac{1}{4} \Rightarrow x-2 > \frac{1}{4} \Rightarrow x > \frac{9}{4}$
 $|x-2| > \frac{1}{4} \Rightarrow x-2 < -\frac{1}{4} \Rightarrow x < \frac{7}{4}$
 $D = (-\infty, \frac{7}{4}) \cup (\frac{9}{4}, +\infty)$

الف) $y = \sqrt{4 - 2|x|}$ $4 - 2|x| \geq 0 \Rightarrow 2|x| \leq 4 \Rightarrow |x| \leq 2$
 $x \leq 2 \text{ و } x \geq -2 \Rightarrow D = [-2, 2]$

ب) $y = \sqrt{\frac{|x|}{|x|}}$ $|x| \neq 0 \Rightarrow x \neq 0$
 $D = \mathbb{R} - \{0\}$