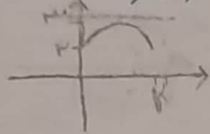


درمورد

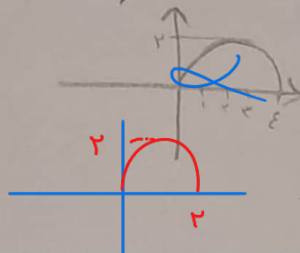
پاسخنامه و تشریح تکالیف شماره ۵۵ برگزین انشائی

۱۸.۷.۵

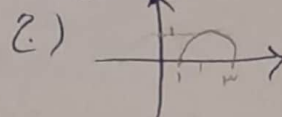
الف) $f(x)+2$



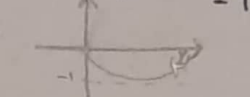
ب)



ج) $f(x-1)$

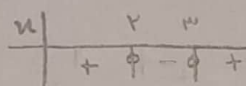


د) $-f(x)$



-۲

الف) $x^2 - 5x + 6 > 0$
 $(x-2)(x-3) > 0$



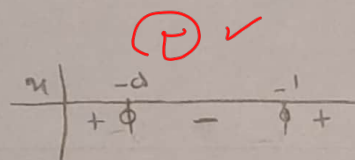
$D_f = (-\infty, 2) \cup (3, +\infty)$

ب) $x^2 - 6x + 5 < 0$
 $(x-1)(x-5) < 0$



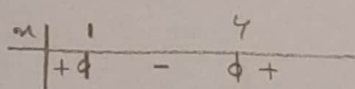
$D_f = (1, 5)$

ج) $x^2 + 4x + 5 \geq 0$
 $(x+1)(x+5) \geq 0$



$D_f = [-5, +\infty) \cup (-\infty, -1]$

د) $x^2 - 7x + 6 \leq 0$
 $(x-1)(x-6) \leq 0$

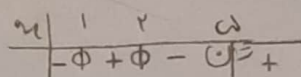


$D_f = [1, 6]$

-۳

الف) $\frac{x^2 - 3x + 2}{x - 5} < 0$

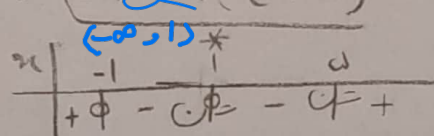
$\frac{(x-1)(x-2)}{x-5}$



$D_f = (1, 2) \cup (5, +\infty)$

ب) $\frac{x^2 - 1}{x^2 - 6x + 5} \geq 0$

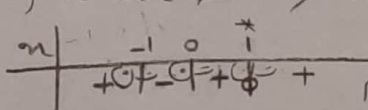
$\frac{(x-1)(x+1)}{(x-1)(x-5)}$



$D_f = [-1, 1] \cup (5, +\infty)$

الف) $y = \sqrt{\frac{x^3 - 1}{x^3 - x}}$
 $\frac{(x-1)(x^2 + x + 1)}{x(x-1)(x+1)}$

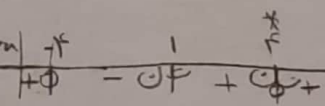
$\frac{x^3 - 1}{x^3 - x} \geq 0$



$D_f = (-\infty, -1) \cup (0, 1) \cup (1, +\infty)$

ب) $y = \sqrt{\frac{x^2 - 16}{x^2 - 5x + 4}}$

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



$D_f = (-\infty, -4] \cup (1, 4) \cup (4, +\infty)$

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

ب) $y = \sqrt{3 - \sqrt{2-x}}$ $2-x \geq 0 \Rightarrow x \leq 2$ $3 - \sqrt{2-x} \geq 0 \Rightarrow \sqrt{2-x} \leq 3 \Rightarrow 2-x \leq 9 \Rightarrow x \geq -7$

$\Rightarrow D_f = [-14, 2]$

ج) $y = \sqrt{2 - \sqrt{2-x}}$ $2-x \geq 0 \Rightarrow x \leq 2$ $2 - \sqrt{2-x} \geq 0 \Rightarrow \sqrt{2-x} \leq 2 \Rightarrow 2-x \leq 4 \Rightarrow x \geq -2$

$\Rightarrow D_f = [-2, 2]$

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

ب) $y = \sqrt{3|u| - 9}$ $3|u| - 9 \geq 0 \Rightarrow |u| \geq 3 \Rightarrow u \in (-\infty, -3] \cup [3, +\infty)$

الف) $y = \sqrt{\frac{|u|+1}{|u|-3}}$ $|u|-3 \neq 0 \Rightarrow |u| \neq 3 \Rightarrow u \neq 3, -3$

ب) $y = \sqrt{\frac{\sqrt{u}+1}{\sqrt{u}-3}}$ $\sqrt{u}-3 \neq 0 \Rightarrow \sqrt{u} \neq 3 \Rightarrow u \neq 9$

$\Rightarrow D_f = [0, 9) \cup (9, +\infty)$

الف) $y = \frac{\sin u}{2 \cos u - 1} \neq 0 \Rightarrow 2 \cos u \neq 1 \Rightarrow \cos u \neq \frac{1}{2} \Rightarrow u \neq \pm \frac{\pi}{3} + 2k\pi$

ب) $y = \frac{\cos u + 1}{2 \sin u + 1} \neq 0 \Rightarrow 2 \sin u \neq -1 \Rightarrow \sin u \neq -\frac{1}{2} \Rightarrow u \neq \pm \frac{7\pi}{6} + 2k\pi$

ج) $y = \frac{\tan u + 2}{\cot u - 1} \neq 0 \Rightarrow \tan u \neq -2 \Rightarrow u \neq \arctan(-2) + k\pi$

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

الف) $y = \frac{1}{\sqrt{2|u-1| - \frac{1}{2}}}$ $2|u-1| - \frac{1}{2} > 0 \Rightarrow |u-1| > \frac{1}{4} \Rightarrow u \in (-\frac{3}{4}, \frac{5}{4}) \cup (\frac{9}{4}, +\infty)$

ب) $y = \sqrt{\frac{|u|}{|u|}}$ $|u| \geq 0 \Rightarrow u \in \mathbb{R}$