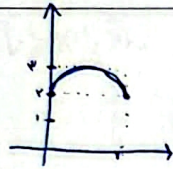


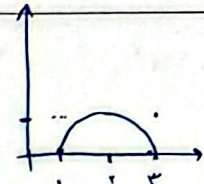
نام و نام خانوادگی پاسخنامه تشریحی تکلیف شماره ... کلاس ...

18, 17, 6

الف) $f(x) + 2$

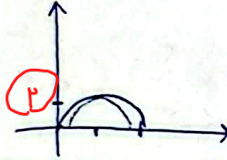


ج) $f(x-1)$



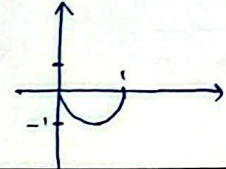
1

ب) $f(x)$



17, 18 ✓

د) $-f(x)$



الف) $x^2 - 5x + 4 > 0$

$(x-1)(x-4) > 0$

$\frac{x-1}{x-4} > 0$

$(-\infty, 1) \cup (4, +\infty)$

ب) $x^2 - 4x + 5 < 0$

$(x-1)(x-5) < 0$

$\frac{x-1}{x-5} < 0$

$(1, 5)$

ج) $x^2 + 4x + 5 \geq 0$

$(x+1)(x+5) \geq 0$

$\frac{x+1}{x+5} \geq 0$

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

د) $x^2 - 4x + 4 \leq 0$

$(x-1)(x-4) \leq 0$

$\frac{x-1}{x-4} \leq 0$

$[1, 4]$

2

الف) $\frac{x^2 - 3x + 2}{x-5} < 0$

$\frac{(x-1)(x-2)}{x-5} < 0$

$\frac{x-1}{x-5} < 0$

$(-\infty, 1) \cup (2, 5)$

ب) $\frac{x^2 - 1}{x^2 - 4x + 5} \geq 0$

$\frac{(x+1)(x-1)}{(x-1)(x-5)} \geq 0$

$\frac{x+1}{x-5} \geq 0$

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

3

الف) $\sqrt{\frac{x^2 - 1}{x^2 - x}}$

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

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

ب) $\sqrt{\frac{x^2 - 14}{x^2 - 5x + 4}}$

$\frac{(x+2)(x-7)}{(x-1)(x-4)} \geq 0$

$\frac{x+2}{x-4} \geq 0$

$(-\infty, -2] \cup (4, 7) \cup (7, +\infty)$

4

الف) $\sqrt{4 - \sqrt{2-x}}$

$2-x \geq 0 \Rightarrow x \leq 2$
 $4 - \sqrt{2-x} \geq 0 \Rightarrow \sqrt{2-x} \leq 4$

$2-x \leq 14 \Rightarrow x \geq -12$
 $\rightarrow -12 \leq x \leq 2$

$[-12, 2]$

ب) $\sqrt{3 - \sqrt{x-2}}$

$x-2 \geq 0 \Rightarrow x \geq 2$
 $3 - \sqrt{x-2} \geq 0 \Rightarrow \sqrt{x-2} \leq 3$

$x \leq 11$

$2 \leq x \leq 11$

$[2, 11]$

5

الف) $\sqrt{4-x^2}$	$4-x^2 \geq 0$	$x^2 \leq 4$ $x \leq 2$ $-\sqrt{4} \leq x \leq \sqrt{4}$	$[-2, 2]$	6
ب) $\sqrt{3 x -4}$	$3 x \geq 4$	$ x \geq \frac{4}{3}$	$x \geq \frac{4}{3}$ $x \leq -\frac{4}{3}$	$(-\infty, -\frac{4}{3}] \cup [\frac{4}{3}, +\infty)$
الف) $\frac{x}{\sqrt{ x +1}}$	$ x \neq -1$	$x \neq -1$ $x \neq 1$	$D_f = \mathbb{R} - \{-1, 1\}$	7
ب) $\frac{\sqrt{x+1}}{\sqrt{x-3}}$	$x \geq -1$ $\sqrt{x-3} \neq 0$	$x \neq 3$	$\Rightarrow [0, 3) \cup (3, +\infty)$	8
الف) $\frac{\sin x}{\cos x - 1}$	$\cos x - 1 \neq 0$ $\cos x \neq 1$	$D_f = \mathbb{R} - \{2k\pi \pm \frac{\pi}{2}\}$		9
ب) $\frac{\cos x + 1}{\sin x + 1}$	$\sin x + 1 \neq 0$ $\sin x \neq -1$	$D_f = \mathbb{R} - \{k\pi + \frac{3\pi}{2}, k\pi + \frac{7\pi}{2}\}$		10
ج) $\frac{\tan x + 2}{\cot x - 1}$	$\cot x \neq 1$ $\tan x \neq 1$	$D_f = \mathbb{R} - \{k\pi + \frac{\pi}{4}\}$		11
د) $\frac{\sin x + 1}{\sin^2 x - 2}$	$\sin^2 x - 2 \neq 0$ $\sin x \neq \pm \sqrt{2}$	$D_f = \mathbb{R} - \{k\pi + \frac{\pi}{4}, k\pi + \frac{5\pi}{4}\}$		12
$y = \frac{1}{\sqrt{2 x-2 - \frac{1}{2}}}$	$2 x-2 - \frac{1}{2} > 0$	$ x-2 > \frac{1}{4}$	$x-2 > \frac{1}{4} \Rightarrow x > \frac{9}{4}$ $x-2 < -\frac{1}{4} \Rightarrow x < \frac{7}{4}$	13
الف) $y = \sqrt{4-2 x }$	$4-2 x \geq 0$	$2 x \leq 4$ $ x \leq 2$ $-2 \leq x \leq 2$	$[-2, 2]$	14
ب) $y = \sqrt{\frac{ x }{ x }}$	$\frac{ x }{ x } \geq 0$	$x \neq 0$	$D_f = \mathbb{R} - \{0\}$	15