

راضی

سوال ۱) $y = f(x)$ $x=0$ $f(x)=0 \Rightarrow -5, -2, 0, 2, 5$

$y = \sqrt{x f(x)}$

x	-5	-2	0	2	5
$f(x)$	+	0	-	-	+
$x f(x)$	-	0	+	+	+

$x f(x) \geq 0 \rightarrow D = [-5, 0] \cup [2, 5]$

سوال ۲) $y = \sqrt{\frac{-x}{f(x)}}$ $-x=0 \Rightarrow x=0$
 $f(x)=0 \Rightarrow x=5, 2, -3, 0$

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

$D = (-3, 2) - \{0\}$

سوال ۳) $f(x) - 2f(2) = x^2 - 4x + 9$

$f(2) - 2f(2) = x^2 - 4x + 9$

$-f(2) = 9 - 4 + 9$

$-f(2) = 14 \quad f(2) = -14$

$f(x) + 14 = x^2 - 4x + 9$

$f(x) = x^2 - 4x - 5$

$f(-2) = 4 - 8 - 5 = -9$

اهداء صالحی

سوال (۴)

$$f(x) = \begin{cases} x - \sqrt{x+4} & x > 3 \\ 2x+3 & x \leq 3 \end{cases}$$

$f(f(1)) + f(f(5)) =$
 $\cancel{f(5)} + \cancel{f(3)} = 9$

سوال (۵)

$$f(x) = ax^2 - bx + c \quad f(x-1) - f(x) = 4x + 2$$

$$a(x-1)^2 - b(x-1) + c - ax^2 + bx - c = 4x + 2$$

$$ax^2 - 2ax + a - bx + b + c - ax^2 + bx - c = 4x + 2$$

$$-2ax + a + b = 4x + 2 \quad -2a = 4 \rightarrow a = -2$$

$$-2 + b = 2 \Rightarrow b = 4$$

سوال (۶)

$$f(x) = \frac{x^2 + 5x + 4}{x^2 + 5x + 4}$$

$$\frac{(x^2 + 5x + 4) + 1}{(x^2 + 5x + 4) + 3} = \frac{(x+2)^2 + 1}{(x+2)^2 + 3} = \frac{(\sqrt{4-2+2})^2 + 1}{(\sqrt{4-2+2})^2 + 3} = \frac{2}{6}$$

سوال (۷)

$$f\left(x - \frac{1}{x}\right) = \frac{x^2 + 1}{x^2} \quad f(-3) = ?$$

$$f\left(x - \frac{1}{x}\right) = \frac{x^2}{x^2} + \frac{1}{x^2} \rightarrow f\left(x - \frac{1}{x}\right) = x^2 + \frac{1}{x^2}$$

$$x - \frac{1}{x} = -3 \rightarrow \left(x - \frac{1}{x}\right)^2 = (-3)^2 = x^2 + \frac{1}{x^2} - 2 = 9$$

$$x^2 + \frac{1}{x^2} = 11$$

احداثی صاف

سوال ۸ $f(x) \{ (2, 0), (4, 1), (6, 1) \}$

$g(x) = \sqrt{9 - x^2}$ عرصہ در را با این رابطہ در
میں لکھیں

الف $\frac{f}{g} = \left\{ (2, \frac{0}{\sqrt{5}}), (4, \frac{-4}{\sqrt{8}}), (6, \frac{1}{4}) \right\}$

ب $\frac{g}{f} = \left\{ (1, \frac{\sqrt{8}}{-4}), (6, \frac{3}{2}) \right\}$

سوال ۹

الف $f(x) = \{ (2, 2), (3, 8), (-5, 4), (1, -4) \}$

ب $f(x) + 1 = \{ (2, 3), (3, 9), (-5, 5), (1, -3) \}$

ج $f^2(x) + 1 = \{ (2, 5), (3, 65), (-5, 17), (1, 17) \}$

$f(2x) = \left\{ (1, 1), (\frac{3}{2}, 4), (-\frac{5}{2}, 2), (\frac{1}{2}, -2) \right\}$ برعکس میں شور

سوال ۱۰

الف $f - g = \{ (2, 3), (7, 1), (1, 5), (3, -2), (5, 1) \}$

$\frac{f}{g} = \left\{ (\frac{2}{5}, \frac{4}{5}), (\frac{7}{1}, \frac{4}{1}), (1, \frac{1}{4}), (3, \frac{2}{-3}), (5, \frac{1}{-3}) \right\}$