

کلاس 11 ریاضی B

کلیف شمارہ 7

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سوال 11. $f(x) = \sqrt{x+4}\sqrt{x-4}$ $g(x) = \sqrt{x-4}\sqrt{x+4}$ $x \geq 4$

$\sqrt{12}\sqrt{4} = \sqrt{48}$ $\therefore \sqrt{4}\sqrt{4} = \sqrt{16}$ $\sqrt{(\sqrt{x-4}+2)^2} \xrightarrow{x \geq 4} \sqrt{x-4} + 2$
 $\sqrt{48} = \sqrt{16 \cdot 3} = \sqrt{16} \sqrt{3} = 4\sqrt{3}$ $g(x) \rightarrow \sqrt{x-4}\sqrt{x+4} \rightarrow \sqrt{(\sqrt{x-4}+2)^2} \xrightarrow{x \geq 4} \sqrt{x-4} + 2$

$f(x) + g(x) = a + b\sqrt{x} + c \rightarrow 2\sqrt{x-4} \rightarrow \begin{cases} c = -4 \\ b = 2 \\ a = 0 \end{cases} \left\{ \frac{a+b}{c} = -\frac{1}{2} \right\}$ D

سوال 2. $f(x) = \frac{x^2 + 5}{x^2 - 4x + 5}$ $g(x) = \{(2, 1), (1, 2), (5, 5), (1, 0)\}$

$f(x) = \frac{x^2 + 5}{(x-2)(x-1)}$ $\frac{-2}{-1} + \frac{1}{-1} + \frac{5}{-1} = -4$ $f(2) = \frac{4}{-1} = -4$ $f(0) = \frac{5}{5} = 1$ D

$\frac{g}{f} = \{(2, -\frac{1}{4}), (0, 4)\}$ D

سوال 3.

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

ب) $f(x) = \{(1, 2), (-1, 2), (\sqrt{2}, -1), (-\sqrt{2}, -1), (2, 2), (-2, 2)\}$

ج) $2g^2(x) + 1 = \{(-2, 19), (1, 2), (5, 9), (-1, 1)\}$ D

د) $\frac{2f}{g} = \{(2, -1), (1, -4), (-2, 4)\}$ D

سوال 4. $f(x) = \{(\frac{1}{2}, 1), (\frac{3}{2}, 1), (\frac{5}{2}, 1), (-\frac{1}{2}, 0)\}$ $g(x) = \{(\frac{1}{2}, 1), (\frac{3}{2}, 1), (-\frac{1}{2}, 1), (\frac{5}{2}, 1)\}$

$h = 2f + g$ $h = \{(2, 2), (5, 2), (-2, 2)\}$ D

سوال 5. $f(x) = \frac{\sqrt{4x-x^2}}{x-2}$ $g(x) = [x] + [-x]$ $(\frac{f}{g+1})(x)$

$Dg = \mathbb{R} \cap Df = [0, 4] - \{2\} = [0, 4] - \{2\}$ $D(\frac{f}{g+1}) = \{0, 1, 3\}$ D

سوال 6. $f(x) = \sqrt{2x-x^2-4} \rightarrow -x^2+2x-4 \geq 0$ $x^2-2x+4 \leq 0$ $\frac{1}{4} - \frac{4}{4} + 4$

$Df = [1, 4]$ $g(x) = \{(1, 2), (2, 2), (4, 2), (2, 1)\}$ $f(1) = 0$ $f(2) = 0$ $f(4) = \sqrt{4}$

$\rightarrow h(x) = \{(1, 0), (2, 0), (4, 0)\}$ D

الف) $y = x^2 - 2x^2 + 2x \rightarrow x(x^2 - 2x + 2) = y$ $y-1 = (x-1)^2$ سؤال 17
 $\rightarrow x = \sqrt{y-1} + 1 \Rightarrow Rf = \mathbb{R}$

ب) $y = \frac{1}{x^2 - 2x} \rightarrow yx^2 - 2yx - 1 = 0$ $x = \frac{2y \pm \sqrt{4y^2 + 4y}}{2y}$
 $\{y^2 + 4y \geq 0, y \neq 0\}$ $\frac{-1}{+1 - \frac{1}{4}}$ $Rf = (-\infty, -1] \cup (0, +\infty)$

الف) $y = x^2 - 4x + 10$ $\frac{b}{4a} = \frac{2}{1} = 2$ $\frac{c}{a} = 10$ $Rf = [4, +\infty)$ سؤال 18

ب) $-x^2 + 4x + 2 = y$ $\frac{b}{4a} = \frac{-2}{-1} = 2$ $\frac{c}{a} = 2$ $Rf = (-\infty, 12]$

ج) $y = \sqrt{x^2 - 4x - 2}$ $\frac{b}{4a} = \frac{2}{1} = 2$ $\frac{c}{a} = -2$ $[-2, +\infty) \xrightarrow{\sqrt{\quad}} Rf = [0, +\infty)$

د) $y = \sqrt{-x^2 + 4x}$ $\frac{b}{4a} = \frac{-2}{-1} = 2$ $\frac{c}{a} = 0$ $(-\infty, 9] \xrightarrow{\sqrt{\quad}} Rf = [0, 2]$

الف) $y = x^2 - 2x^2 + 2x + 1$ $Rf = \mathbb{R}$ سؤال 19

ب) $y = x^2 - 4x^2 + 2x + 2$ $\Rightarrow Rf = \mathbb{R}$

ج) $y = \sqrt{x^2 - 4x^2 + 2x + 1}$ $\Rightarrow Rf = [0, +\infty)$

د) $y = (x^2 - 4x^2 + 2x + 1)^2$ $\Rightarrow Rf = [0, +\infty)$

الف) $y = \frac{x+1}{x-2}$ $Rf = \mathbb{R} - \{2\}$ سؤال 20

ب) $y = \frac{x+1}{x+1}$ $Rf = \mathbb{R} - \{1\}$