Subject:
Year. Month. Date. ( )

۲۰ آفرین

Name. سارا بتریزینا

سوال ۱

الف) $x^2 = y+5$ $\quad x = \pm\sqrt{y+5}$ $\quad y+5 \geq 0$ $\quad y \geq -5$

$R_f = [-5, +\infty)$

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ب) $x^3 = y-1$ $\quad x = \sqrt[3]{y-1}$ $\quad R_f = \mathbb{R}$

سوال ۲

الف) $x^2 - 4x + 6 - y = 0$

$x = \dfrac{-(-4) \pm \sqrt{(-4)^2 - 4\times1\times(6-y)}}{2}$ $\quad x = \dfrac{\pm\sqrt{16-4(6-y)}}{2} =$

$\dfrac{4 \pm \sqrt{4y-8}}{2} \Rightarrow 4y-8 \geq 0$ $\quad y \geq 2$ $\quad R_f\ [2, +\infty)$

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راه دوم: $y(x+2)^2+2 \rightarrow (x+2)^2 = y-2$ $\quad x = \pm\sqrt{y-2} - 2$ $\quad y \geq 2$

ب) $y = x^2 - 5x + 1 \Rightarrow y = (x - \frac{5}{2})^2 - \frac{21}{4} \Rightarrow$

$y + \frac{21}{4} = (x - \frac{5}{2})^2 \Rightarrow |x - \frac{5}{2}| = \sqrt{y + \frac{21}{4}} \Rightarrow$

$x = \sqrt{y + \frac{21}{4}} + \frac{5}{2} \Rightarrow$ $\quad -\frac{21}{4}$ $\quad - \mid +$ $\quad y + \frac{21}{4} \geq 0 \Rightarrow$

$R_{(f)} = [-\frac{21}{4}, +\infty)$

سوال ۳

الف) $x^2 + 3 = yx^2 - 2y$ $\quad yx^2 - x^2 = 3 + 2y$

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$x^2(y-1) = 3+2y$

$x^2 = \dfrac{3+2y}{y-1}$ $\quad x = \sqrt{\dfrac{3+2y}{y-1}}$ $\quad -\frac{3}{2}$

$R_f = (-\infty, -\frac{3}{2}] \cup (1, +\infty)$

$-\frac{3}{2}$ $\quad 1$

$+ \quad 0 \quad - \quad \text{ت ن} \quad +$

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ب) $2|x|+1 = y|x|-4y$

$y|x|-2|x|=1+4y$

$|x|(y-2)=1+4y$

$|x| = \frac{1+4y}{y-2}$ $R_f (-\infty, -\frac{1}{4}] \cup (2, +\infty)$

	$-\frac{1}{4}$		2	
+	0	−	∄	+

$y x^2 - 4xy - 1 = 0$

$1 = yx^2 - 4xy$

سوال ۴

$x = \frac{-(-4y) \pm \sqrt{(-4y)^2 - 4 \times y \times (-1)}}{2y}$ (۲)

$x = \frac{4y \pm \sqrt{16y^2+4}}{2y}$ $x = \frac{4y \pm 2\sqrt{4y^2+y}}{2y}$

$x = \frac{2y \pm \sqrt{4y^2+y}}{y}$

$4y^2+y \geq 0$

$y=0 \quad y=-\frac{1}{4}$

$R_f = (-\infty, -\frac{1}{4}] \cup (0, +\infty)$

سوال ۵

الف) $\frac{-b}{2a}$ $\frac{4}{2} = 2$ $9-18+5 = -4$

$R_f \ [-4, +\infty)$ (۲)

ب) $\frac{-4}{-2} = 2$ $-4+8+2 = 6$

$R_f = (-\infty, 6]$

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سوال ۶) $[\sqrt{7}, +\infty)$ $9-18+2=7$ الف) $\frac{+6}{2}=3$ ✓ ۲

ب) $\frac{-4}{-2}=2$ $-4+8+10=14$ $[0, \sqrt{14}]$ ✓

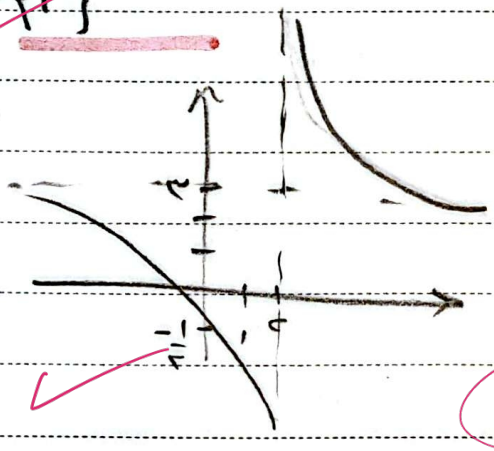
سوال ۷) الف) $R_f = \mathbb{R}$ ✓ ۲

ب) $x^{\omega}+4x^2+4x+1 \geq 0$ $R_f=[0,+\infty)$ ✓

سوال ۸ الف) $R_f = \mathbb{R}-\{3\}$ ✓ ۲

ب) $R_f=[0,+\infty)-\{2\}$ ✓

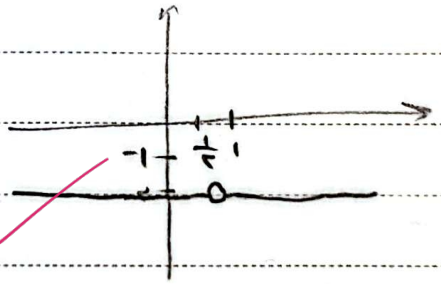
سوال ۹ الف) $x=2$ $y=3$ ۲



✓

ب) $y=\frac{4x-2}{-2x+1}$

$2\,\frac{(2x-1)}{(-2x+1)}=-2$



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سوال ۱.

الف) $[2, +\infty)$ ✓

ب) $\sqrt[3]{x + \frac{1}{x}}$ $(-\infty, \sqrt[3]{-2}] \cup [\sqrt[3]{2}, +\infty)$ ✓ ۲

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