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پنجشنبه دهم دختر

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الف) $y = x^2 - 5 \to x^2 = y + 5 \to x = \pm\sqrt{y+5} \to R_f = [-5, +\infty)$

ب) $y = x^2 + 1 \to x^2 = y - 1 \to x = \sqrt{y-1} \to R_f = IR$

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الف) $y = x^2 - 4x + 6 \to y = (x-2)^2 + 2 \to x - 2 = \pm\sqrt{y-2} \to x = \pm\sqrt{y-2} + 2 \to y \geq 2$

$R_f = [2, +\infty)$

ب) $y = (x - \frac{5}{2})^2 - \frac{21}{4} \to y = \pm\sqrt{y + \frac{21}{4}} + \frac{5}{2} \to y \geq -\frac{21}{4} \to R_f = [-\frac{21}{4}, +\infty)$

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

$\frac{2y+3}{y-1} \geq 0$ $\quad -\frac{3}{2} \quad 1$ $\quad + \; - \; +$ $\quad R_f = (-\infty, -\frac{3}{2}] \cup (1, +\infty)$

ب) $y|x| - 4y = 2|x| + 1 \to y|x| - 2|x| = 4y + 1 \to |x| = \frac{4y+1}{y-2}$ $\quad -\frac{1}{4} \quad 2$ $\quad + \; - \; +$

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

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$yx^2 - 4xy = 1 \to x = \frac{4y \pm \sqrt{16y^2 + 4y}}{2y}$

$16y^2 + 4y \geq 0 \to 4y(4y+1) \geq 0$ $\quad -\frac{1}{4} \quad 0$ $\quad + \; - \; +$ $\quad R_f = (-\infty, -\frac{1}{4}] \cup (0, +\infty)$

$2y \neq 0 \to y \neq 0$

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الف) $\frac{-b}{2a} = \frac{6}{2} = 3$ $\quad R_f = [-7, +\infty)$

$9 - 18 + 2 = -7$

ب) $\frac{-b}{2a} = \frac{-4}{-2} = 2$

$R_f = (-\infty, 6]$

$+8 - 4 + 2 = 6$

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الف) $\frac{-b}{۲a} = \frac{۹}{۲} = ۳$ $\quad R_f = \sqrt{[-۷, +\infty)} = [۰, +\infty)$

$۹ - ۱۸ + ۲ = -۷$

ب) $\frac{-b}{۲a} = \frac{-۴}{-۲} = ۲$ $\quad R_f = \sqrt{(-\infty, ۱۴]} = [۰, \sqrt{۱۴}]$

$۴ + ۸ + ۱۰ = ۱۴$

۷ـ الف) $R_f = R$ $\quad$ ب) $R_f = [۰, +\infty)$

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الف) $R - \{۳\}$ $\quad$ ب) $R_f = \sqrt{R - \{۴\}} = [۰, +\infty) - \{۲\}$

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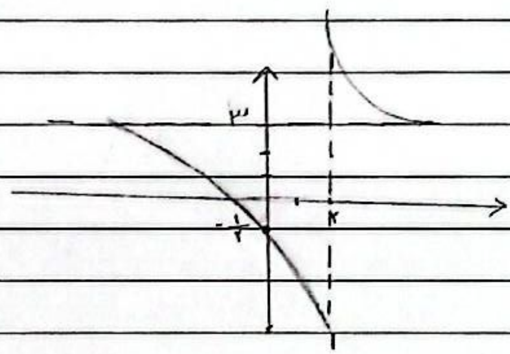
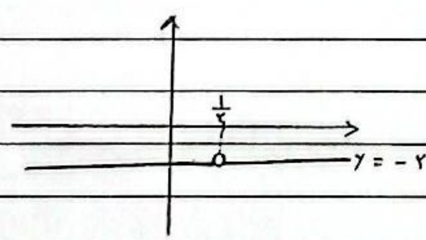
الف)



$x = ۰$

$y = -\frac{۱}{۲}$

ب)



$y = \frac{۲(۲x - ۱)}{۱ - ۲x} = -۲$

$x \neq \frac{۱}{۲}$

۱۰ـ الف) $R_f = [۲, +\infty)$

ب) $\sqrt[۳]{x + \frac{۱}{x}}$ $\quad \sqrt[۳]{(-\infty, -۲] \cup [۲, +\infty)}$ $\quad R_f = (-\infty, \sqrt[۳]{-۲}] \cup [\sqrt[۳]{۲}, +\infty)$