

19, 175 آخرین

کرمینا کبیری گروه دوم و پنجم

الف) $x^2 = y + 5 \rightarrow x = \sqrt{y+5} \rightarrow y+5 \geq 0 \rightarrow y \geq -5$ $R_f = [-5, +\infty)$

ب) $x^2 = y - 1 \rightarrow x = \sqrt{y-1}$ $R_f = [1, +\infty)$

الف) $(x-2)^2 + 2 = y \rightarrow (x-2)^2 = y-2 \rightarrow x = \pm \sqrt{y-2} + 2 \rightarrow y-2 \geq 0 \rightarrow y \geq 2$ $R_f = [2, +\infty)$

ب) $y = (x - \frac{1}{x})^2 - \frac{1}{x^2} \rightarrow (x - \frac{1}{x})^2 = y + \frac{1}{x^2} \rightarrow x = \pm \sqrt{y + \frac{1}{x^2}} + \frac{1}{x} \rightarrow y + \frac{1}{x^2} \geq 0 \rightarrow y \geq -\frac{1}{x^2}$ $R_f = [-1, +\infty)$

الف) $x^2 + 3 = y \rightarrow x^2 = y - 3 \rightarrow x = \pm \sqrt{y-3}$ $R_f = [3, +\infty)$

ب) $x|x| + 1 = y \rightarrow |x|(x+1) = y-1 \rightarrow |x| = \frac{y-1}{x+1} \rightarrow x = \frac{y-1}{x+1} \rightarrow x(x+1) = y-1 \rightarrow x^2 + x - y + 1 = 0$ $R_f = (-\infty, \frac{1}{2}] \cup (1, +\infty)$

الف) $1 = yx^2 - 4xy + yx^2 - 4yx - 1 = 0 \rightarrow x = \frac{4y \pm \sqrt{(4y)^2 - 4(-1)(-1)}}{2y} = \frac{4y \pm \sqrt{16y^2 - 4}}{2y} = \frac{4y \pm 2\sqrt{4y^2 - 1}}{2y} = \frac{2y \pm \sqrt{4y^2 - 1}}{y}$ $R_f = (-\infty, \frac{1}{2}] \cup (0, +\infty)$

الف) $x_{min} = \frac{-b}{2a} = \frac{4}{2} = 2 \rightarrow y_{min} = 9 - 18 + 2 = -7$ $R_f = [-7, +\infty)$

ب) $x_{max} = \frac{-b}{2a} = \frac{-4}{2} = -2 \rightarrow y_{max} = -4 + 18 + 2 = 16$ $R_f = (-\infty, 16]$

الف) $x_{min} = \frac{-b}{2a} = \frac{4}{2} = 2 \rightarrow y_{min} = 9 - 18 + 2 = -7$ $R_f = \sqrt{[-7, +\infty)} = [0, +\infty)$

ب) $x_{max} = \frac{-b}{2a} = \frac{-4}{2} = -2 \rightarrow y_{max} = -4 + 18 + 2 = 16$ $R_f = \sqrt{[-\infty, 16]} = [0, \sqrt{16}]$

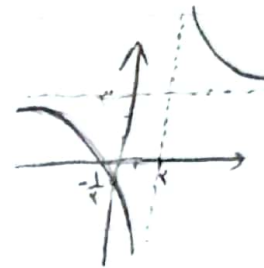
الف) $R_f = (R) \rightarrow$ هر عددی که توان فرد است

ب) $R_f = \sqrt{x} = [0, +\infty)$

الف) $R_f = [R - \frac{1}{2}, R - \frac{1}{2}]$

ب) $R_f = \sqrt{R - \frac{1}{2}} \pm \sqrt{R - \frac{1}{2}} = [0, +\infty) - \frac{1}{2}$

(الف) $y \leq \frac{a}{c} = 3$: معانب افق
 $= 2$: معانب قائم
 $x \leq 0 \rightarrow y = \frac{1}{x}$



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(ب) $y = \frac{4x-2}{1-2x} = \frac{4(\frac{1}{2x-1})}{1-2x} = -2$



$1-2x \neq 0$
 $x \neq \frac{1}{2}$

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(الف) $y = \cos^2 x + \frac{1}{\cos^2 x} \rightarrow \cos^2 x > 0 \rightarrow R_f = [2, +\infty)$

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(ب) $y = \sqrt[3]{x + \frac{1}{x}} \rightarrow R_f = \sqrt[3]{(-\infty, -2] \cup [2, +\infty)} = (-\infty, \sqrt[3]{-2}] \cup [\sqrt[3]{2}, +\infty)$

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