

الف) $y = x^2 - 4x + 2$ $\min \left| \frac{-b}{2a} = 2 \right|$ $\sqrt{[-4] + \infty}$ $[0 + \infty)$ ٢

ب) $y = -x^2 + 4x + 1$ $\max \left| \frac{-b}{2a} = -\frac{4}{-2} = 2 \right|$ $\sqrt{(-\infty) + 1}$ $[0 + \infty)$ $\leftarrow$ انفاق $[2, \infty)$

الف) R ٢

ب) $\sqrt{R} = [0 + \infty)$

الف) $y = \frac{x^2 + 1}{x - 2} \Rightarrow R = \{x\}$ ١, ٧, ٨

ب) $\sqrt{R - \{x\}} = [0 + \infty) - \sqrt{x} \leq [2 + \infty) - \{x\}$

الف) $y = \frac{x^2 + 1}{x - 2}$ $\frac{1}{2}$ جانب قائم $\frac{3}{2}$ افقى ١

ب) $y = \frac{x^2 + 1}{x - 2}$ $\frac{1}{2}$ جانب قائم $\frac{3}{2}$ افقى $y = -2$

الف) $y = \cos^2 x + \frac{1}{\cos^2 x}$ $\Rightarrow [2 + \infty)$ ١, ٨

ب) $\sqrt{\frac{x^2 + 1}{x}} = \frac{x}{x} + \frac{1}{x} = x + \frac{1}{x} \Rightarrow (-\infty - 2] \cup [2 + \infty)$

$R_y = (-\infty, -\sqrt{2}] \cup [\sqrt{2}, +\infty)$ $\star$ راديكال فتره ٣ بايد اعمال شود

الف) $x^2 = y + \omega$
 $x = \pm \sqrt{y + \omega}$ $R_f = (-\infty, +\infty)$

14, 15

المجال

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ب) $y = x^2 + 1$
 $x^2 = y - 1$
 $x = \pm \sqrt{y - 1}$ R

الف) $y = x^2 - 4x + 4 \Rightarrow x^2 - 4x + 4 = y$

$y = (x - 2)^2 + 0$

$(x - 2)^2 = y$
 $(x - 2) = \pm \sqrt{y}$
 $x = \pm \sqrt{y} + 2$

$[2, +\infty)$

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ب) $y = x^2 - 4x + 4 \rightarrow y = (x - 2)^2 - \frac{4}{4} \rightarrow x - 2 = \pm \sqrt{y + \frac{4}{4}} + \frac{4}{4}$

$y + \frac{4}{4} \geq 0 \rightarrow y \geq -\frac{4}{4} \rightarrow R_y = [-1, +\infty)$

الف) $y = \frac{x^2 + 1}{x^2 - 1} \Rightarrow x^2 + 1 = y(x^2 - 1)$

$x^2 - yx^2 = -y - 1$

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

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

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

$+\frac{1}{2} + \frac{1}{2} + \frac{1}{2}$

1, 2

$[-\frac{1}{2}, 1)$

ب) $y = \frac{x^2 + 1}{x^2 - 1}$

$\Rightarrow x^2 + 1 = y(x^2 - 1)$

$x^2 - yx^2 = -y - 1$

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

$\Rightarrow x^2 = \frac{-y - 1}{1 - y}$

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

$+\frac{1}{2} + \frac{1}{2} + \frac{1}{2}$

$y = \frac{1}{x^2 - 4x}$

$y(x^2 - 4x) = 1$

$y(x^2 - 4x) - 1 = 0$

$x = \frac{-b \pm \sqrt{\Delta}}{2a}$

$y^2 + 4y \geq 0$

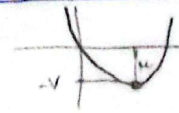
$y(y + 4) \geq 0$

$(-4y)^2 - 4(y)x - 1 = 0$
 $(-\infty, -\frac{1}{2}] \cup (0, +\infty)$

2

الف) $y = x^2 - 4x + 4$

$\min \left| \frac{b}{2a} = \frac{4}{2} = 2 \right|$

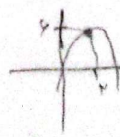


$[-2, +\infty)$

2

ب) $y = -x^2 + 4x + 4$

$\max \left| \frac{b}{2a} = \frac{4}{2} = 2 \right|$



$(-\infty, 8]$