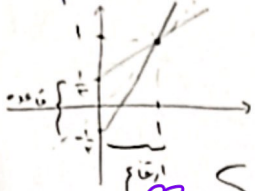


کارانه پوری

تکلیف ۵۱

کلاس دوازدهم

① $y = \frac{2x-1}{2}$
 $y' = \frac{2}{2} = 1$
 $y = \frac{2x+1}{2} \rightarrow \frac{2x}{2} + \frac{1}{2} = x + \frac{1}{2}$



$\frac{2x-1}{2} = x \rightarrow x = 1$ (1,5)

$S = \frac{1}{2} \times \frac{1}{2} \times \frac{1}{2} = \frac{1}{8}$
 $S = \frac{(\frac{1}{2} + \frac{1}{2}) \times 1}{2} = \frac{1}{2}$ جواب

②

$f(x) = x^2 - 2x + 2 \rightarrow \frac{b}{2a} = 1 \rightarrow$ طول رأس
 $x = 1 \rightarrow y = 1 - 2 + 2 = 1$
 $x = (y-1)^2 + 1 \rightarrow \sqrt{x-1} + 1, y$

(2)

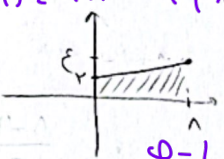
$f^{-1}(x) = \sqrt{x-1} + 1$

ب) $g(x) = x^2 - 2x + 2 \sim \frac{b}{2a} = 1 \sim 3 > 1$
 $x = 3 \rightarrow y = 9 - 6 + 2 = 5$
 $x = (y-1)^2 + 1 \sim g^{-1}(x) = \sqrt{x-2} + 1, x \in [4, +\infty)$

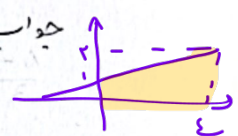
③

$f(x) = 2x - \sqrt{x(x-1)} \Rightarrow 2x - 2|x-1| \rightarrow 2x - 2|x-1|$
 $f(x) = 2x - 2|x-1| \rightarrow$

$2x+2x-1 = 4x-1 = 2x \Rightarrow x = \frac{1}{2}$
 $2x-1 = 2x \Rightarrow x = \frac{1}{2}$
 $f^{-1}(x) = \frac{x+1}{2} \rightarrow \frac{1}{2}$



$S = \frac{(1+0) \times 1}{2} = \frac{1}{2}$ جواب



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

$S = \frac{1 \times 1}{2} = \frac{1}{2}$ (4)

④

$y = \frac{x}{\sqrt{x^2-1}} \Rightarrow y_1 = \frac{x_1}{\sqrt{x_1^2-1}} \rightarrow y_1 = y_2 \Rightarrow \frac{x_1}{\sqrt{x_1^2-1}} = \frac{x_2}{\sqrt{x_2^2-1}}$

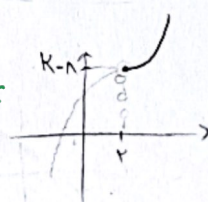
$\frac{x_1^2}{x_1^2-1} = \frac{x_2^2}{x_2^2-1} \Rightarrow x_1^2(x_2^2-1) = x_2^2(x_1^2-1) \Rightarrow x_1^2 x_2^2 - x_1^2 = x_1^2 x_2^2 - x_2^2 \Rightarrow x_1^2 = x_2^2 \Rightarrow x_1 = \pm x_2$

$x_1 = \frac{y}{\sqrt{y^2-1}} \Rightarrow x_1^2 = \frac{y^2}{y^2-1} \Rightarrow x_1^2 y^2 - y^2 = y^2 \Rightarrow x_1^2 y^2 = 2y^2 \Rightarrow x_1^2 = 2 \Rightarrow x_1 = \pm \sqrt{2}$
 $y = \frac{1}{\sqrt{2}}$
 $f^{-1}(x) = \frac{\sqrt{2}x}{\sqrt{x^2-1}}$

⑤

$\frac{b}{2a} = 2$

$g(x) = \begin{cases} x^2 - 4x + 4; x \geq 2 \rightarrow \frac{b}{2a} = 2 \\ -x^2 + 4x + 4; x < 2 \rightarrow \frac{b}{2a} = 2 \end{cases}$



$x^2 - 4x + 4 \leq x^2 - 4x + 4 \rightarrow x^2 - 4x + 4 \leq x^2 - 4x + 4 \rightarrow x^2 - 4x + 4 \leq x^2 - 4x + 4$
 $x^2 - 4x + 4 \leq x^2 - 4x + 4 \rightarrow x^2 - 4x + 4 \leq x^2 - 4x + 4$
 $x^2 - 4x + 4 \leq x^2 - 4x + 4 \rightarrow x^2 - 4x + 4 \leq x^2 - 4x + 4$

(1, 1.5)

$x^2 - 4x + 4 \leq x^2 - 4x + 4 \rightarrow x^2 - 4x + 4 \leq x^2 - 4x + 4$

$x^2 - 4x + 4 \leq x^2 - 4x + 4 \rightarrow x^2 - 4x + 4 \leq x^2 - 4x + 4$

l, v, δ





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