

14 $\rightarrow 2y = 3y - 1 \rightarrow \frac{2y+1}{3} = y^{-1} \rightarrow \frac{2y+1}{3} = \frac{1}{y} \rightarrow 2y^2 + y = 3 \rightarrow 2y^2 + y - 3 = 0$

این دونه غلطو قیدم ولی

حواست باشه

$S = \frac{1}{3} \cdot \frac{1}{2} = \frac{1}{6}$

ارتفاع د تله

1

2

لیکلیاته

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$y = x^2 - 2x + 3$

$x = y^2 - 2y + 3$

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

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$y^{-1} = 1 + \sqrt{x-2}$

$R_f = D_f^{-1} \rightarrow [4, +\infty)$

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2x - \sqrt{14-4x(x-1)} \rightarrow 2x - \sqrt{f(f-1)^2} \rightarrow 2x - 2|f-1|

فرض کنی فاصله ببری!

$f(x) = 2x - \sqrt{14-4x(x-1)}$

$f(x) = 2x - 2|x-2|$

$x > 2 \rightarrow f(x) = 2x - 2(x-2) = 4$

$x < 2 \rightarrow f(x) = 2x - 2(2-x) = 4x - 4$

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

$D_f^{-1} = R_f = (-\infty, 4]$

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$S = \frac{1}{2} \cdot \frac{1}{4} = \frac{1}{8}$

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4

14

لیکلیاته

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$\frac{x^2}{x^2-5} = \frac{y^2}{y^2-5} \rightarrow \frac{x^2}{x^2-5} = \frac{y^2}{y^2-5} \rightarrow x^2(y^2-5) = y^2(x^2-5) \rightarrow x^2y^2 - 5x^2 = x^2y^2 - 5y^2 \rightarrow -5x^2 = -5y^2 \rightarrow x^2 = y^2 \rightarrow x = \pm y$

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$y = \frac{\sqrt{5x}}{\sqrt{x^2-1}}$

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$x^2 - 4x + k = 0 \rightarrow x = 2 \rightarrow k = 12 + 3k \rightarrow 3k = -8 \rightarrow k = -\frac{8}{3}$

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$-4 > k$

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$$x > 0 \rightarrow f(x) \rightarrow y \rightarrow [0, +\infty) \xrightarrow{f^{-1}} \left(\frac{1}{x}\right)$$

$$x < 0 \rightarrow f(x) \rightarrow y \rightarrow (-\infty, 0] \xrightarrow{f^{-1}} \left(\frac{1}{x}\right)$$

$$f(x) \begin{cases} x > 0 \rightarrow (a+b)x \rightarrow a+b = \frac{1}{x} \\ x < 0 \rightarrow (a-b)x \rightarrow a-b = \frac{1}{x} \end{cases} \rightarrow \begin{cases} a = \frac{1}{2x} \\ b = -\frac{1}{2x} \end{cases} \rightarrow \boxed{ab = -\frac{1}{4x^2}}$$

$$\frac{f(y)+k}{y+m} = 10 \rightarrow \frac{10}{y+m} = 10 \rightarrow \boxed{m = -3} \quad \boxed{a+d = 0} \rightarrow f^{-1}(x) = \frac{y+k}{y-3} \rightarrow \boxed{f \circ f^{-1}(x) = x} \rightarrow D_{f \circ f^{-1}} = \{x \neq 3\}$$

$$f(3-2x) = t = 2 - g\left(\frac{x}{2}\right) \rightarrow f^{-1}(t) = 3-2x \rightarrow t-2 = -g\left(\frac{x}{2}\right) \rightarrow x = g^{-1}(2-t) = \frac{2-t}{2} \rightarrow f^{-1}(t) = 3 - \frac{2-t}{2}$$

$$\rightarrow f^{-1}(2) = 3 - \frac{2-2}{2} = 3$$

$$\frac{f(x)+13}{1+x} = -\left(\frac{5(-x)-13}{1-(-x)}\right) \rightarrow \frac{5x+3}{1+x} = f(x) \rightarrow \frac{5x+3-3x+3}{x-1} = \frac{2x+6}{x-1} = f(x)$$

$$f^{-1}(x) \rightarrow x = \frac{2y+6}{y-1} \rightarrow xy-x = 2y+6 \rightarrow xy-2y = x+6 \rightarrow y = \frac{x+6}{x-2}$$

$$\frac{2x+6}{x-1} = \frac{x+6}{x-2} \rightarrow 2x^2 + 2x - 12 = x^2 + 6x - 4 \rightarrow x^2 - 4x - 8 = 0 \rightarrow x = \frac{4 \pm \sqrt{16+32}}{2} = \frac{4 \pm \sqrt{48}}{2} = \frac{4 \pm 4\sqrt{3}}{2} = 2 \pm 2\sqrt{3}$$