

Subject :

Year :

Month :

Date :

نوع سوال: رانی

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۱۸,۷۵

سوال ۱: ۵

$$A = \{1, 2, 3\}$$

$$A \times B - B \times A =$$

$$B = \{2, 3\}$$

$$\{(1,2)(1,3)(2,2)(2,3)(3,2)(3,3)\} - \{(2,2)(2,3)(3,2)(3,3)\}$$

$$= \{(1,2), (1,3)\}$$

سوال ۲: ۵

$$m^2 \rightarrow m+2 \rightarrow m^2 - m - 2 = 0 \rightarrow (m+1)(m-2) = 0 \rightarrow m = -1, 2$$

$$\rightarrow m = -1 \text{ (فقط یک نقطه)}$$

$$b) m^2 \rightarrow m+2 \rightarrow m = -1, 2 \rightarrow m \text{ برای هیچ مقدار}$$

سوال ۳: ۵

$$f(x) = \begin{cases} x^2 - 1 : x < 1 \rightarrow x = 1 = 0 \\ ax + b : 1 \leq x < 2 \rightarrow x = 1 \rightarrow a + b = 0 \\ x^2 : x \geq 2 \rightarrow x = 2 \rightarrow a + b = 4 \end{cases} \Rightarrow a = 1, b = -1$$

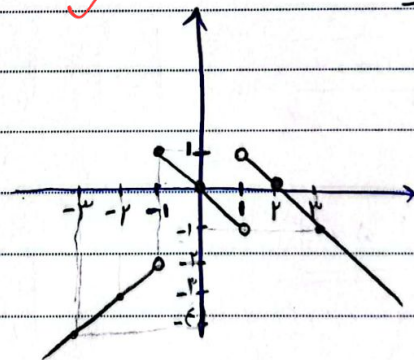
$$ab = -4$$

$$f(x) = \begin{cases} 2x - 3 : x \geq k \rightarrow 2k - 3 = \epsilon - 3k \rightarrow 5k = 7 \rightarrow k = \frac{7}{5} \\ \epsilon - 2x : x < k \end{cases}$$

$$f(x) = \begin{cases} -x + 2 : x > 1 \\ -x : -1 \leq x < 1 \\ x - 1 : x < -1 \end{cases}$$

$$D: \mathbb{R} - \{1\}$$

$$R: (-\infty, 1]$$



سوال ۵: ۵

سوال ۴: ۵

$$2y^3 + x^2 + 1 = 0 \rightarrow 2y^3 = -x^2 - 1 \rightarrow y^3 = -\frac{x^2 + 1}{2} \rightarrow y = -\sqrt[3]{\frac{x^2 + 1}{2}}$$

$$2x^2 + 4y^2 - 2x - 12y + 1 = 0 \rightarrow (x-1)^2 + (2y-3)^2 = 0 \rightarrow x=1, y=1.5$$

$$\rightarrow \text{نقطه از این نقطه}$$

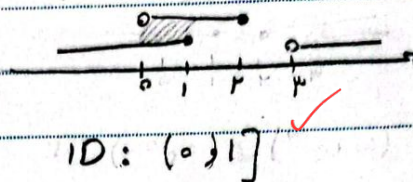
SABA

الف) $x \sin y = y \sin x \rightarrow x=9 \rightarrow 9 \sin y = y \sin 9 \rightarrow 9 \sin y = y$ سؤال ٧
 $\rightarrow y = \pm 9$ 5 ✓

ب) $\sqrt{\frac{x}{y}} + \sqrt{\frac{y}{x}} = 2 \rightarrow \frac{x+y}{\sqrt{xy}} = 2 \rightarrow x+y = 2\sqrt{xy} \rightarrow (\sqrt{x} - \sqrt{y})^2 = 0$

$\rightarrow \sqrt{x} = \sqrt{y} \rightarrow x = y$ تابع متماثل

الف) $y = \sqrt{\frac{x-1}{x-2}} + \sqrt{\frac{2-x}{x}}$
 $\frac{1}{x-2} - \frac{1}{x-1} + \frac{1}{x} - \frac{1}{2-x}$



سؤال 1, 1,50

ب) $\sqrt{x} + \sqrt{y-1} = \sqrt{2} \rightarrow \sqrt{y-1} = \sqrt{2} - \sqrt{x} \rightarrow y-1 = 2 + x - \sqrt{2x} \rightarrow y = x - \sqrt{2x} + 3$
 $\rightarrow \sqrt{2x} \leq x \rightarrow x \geq 0$

$\rightarrow y = x - \sqrt{2x} + 3 \rightarrow 3x \geq 0 \rightarrow x \geq 0 \rightarrow ID = [0, +\infty)$ Df = [0, 3]

الف) $y = \sqrt{x^2 - 5x + 4} \rightarrow \frac{1}{x-4} - \frac{1}{x-1}$
 $\sqrt{x^2 - 5x + 4} \rightarrow \frac{1}{x-4} - \frac{1}{x-1}$
 $\rightarrow (-\infty, 1] \cup (4, +\infty)$ سؤال 9, 1,8 x ≤ 1

ب) $y = \sqrt{\frac{x^2 - 5x + 4}{x^2 - 10x + 4}} \rightarrow \frac{1}{x-4} - \frac{1}{x-1}$
 $\rightarrow (-\infty, 1] \cup (4, +\infty)$ Df =

الف) $y = \sqrt{\frac{x^2 - 5x + 3}{x^2 - 10x + 4}} \rightarrow \frac{1}{x-4} - \frac{1}{x-1}$
 $\rightarrow Df = (-\infty, 1] \cup [\frac{3}{2}, +\infty)$ سؤال 10, 2

ب) $y = \sqrt{\frac{x^2 - 8x + 3}{x^2 - 10x + 4}} \rightarrow \frac{1}{x-4} - \frac{1}{x-1}$
 $\rightarrow Df = (-\infty, \frac{4}{3}) \cup [\frac{3}{2}, +\infty) - \{1\}$