

Subject:

$$\begin{aligned} f(-n) - n f(n) &= r|n|+1 \quad (f(n), r|n|+1 - n f(n)) \\ f(n) + n f(-n) &= r|n|+1 \quad f(n) + r|n|+1 - n + n f(n) \rightarrow (n^2-1)f(n) = r|n|+1 - r|n|+1 - n \\ f(n) &= \frac{(r|n|+1)(1-n)}{1+n^2} \end{aligned} \quad (1)$$

$$\begin{aligned} f(n) + f(0) &= n^2 - 4n + 4 \quad \therefore f(0) = 4 \quad f(1) = 3 \quad f(n) = n^2 - 4n + 4 \\ f(n^2) & \quad f(n^2) = n^2 - 4n^2 + 4 \end{aligned} \quad (2)$$

$$\begin{aligned} y n - y &= n^2 + n + 2 \quad n^2 + (-y)n + 2 + y = 0 \quad \frac{-b \pm \sqrt{b^2 - 4ac}}{2a} = \frac{-1 \pm \sqrt{1-4}}{2} \\ y^2 - 4y - 4 &\geq 0 \quad \frac{-1 \pm \sqrt{5}}{2} \quad R = (-\infty, -1] \cup [1, +\infty) \end{aligned} \quad (3)$$

$$\text{الف) } n \geq \frac{y}{2} \quad y \geq \frac{2n^2}{y} - \frac{2n}{y} + 1 = 1 \quad R = [1, +\infty) \quad (4)$$

$$\text{ب) } n \geq \frac{-4}{-2} = 2 \quad y \geq -4 + 1 = -3 \quad R = (-\infty, 2] \quad [0, 2]$$

$$\text{ج) } [0, +\infty) \quad \text{مجموعه ها را جدا جدا در نظر بگیریم} \quad R = \{ \frac{a}{2} \}$$

$$\text{د) } \log \left(\frac{n^2 - 4n^2 + 4n + 4}{n^2} \right) \quad (0, +\infty)$$

$$\text{الف) } R = \left\{ \frac{4}{r} \right\} \quad R = \left\{ \frac{a}{2} \right\} \quad (5)$$

$$\begin{aligned} \text{ب) } [0, +\infty) &= \left\{ \frac{4}{r} \right\} \\ \text{ج) } \frac{n^2 + d}{n^2 + 1} &= \frac{n^2 + 1 + d}{n^2 + 1} = \sqrt{n^2 + 1} + \frac{1}{\sqrt{n^2 + 1}} \xrightarrow{a=n, b=1} \sqrt{1} + \frac{1}{\sqrt{1}} = \frac{4}{1} \rightarrow \left[\frac{4}{1}, +\infty \right) \end{aligned}$$

$$\text{د) } n^2 + d + \frac{1}{n^2 + d} - d \xrightarrow{\min_{a=d}} d + \frac{1}{d} - d = \frac{1}{d} \quad \left[\frac{1}{d}, +\infty \right)$$

$$\frac{n^2 + d}{n^2 + 1} \quad \begin{cases} 0 & -d \\ +\infty & 1 \end{cases} \quad \text{مجموعه ها را جدا جدا در نظر بگیریم} \quad (-\infty, -d] \cup [1, +\infty) \quad (6)$$

$$\frac{y \sin n + d}{\sin n - 1} \quad \begin{cases} 1 & -\frac{1}{y} \\ -\infty & -1 \end{cases} \quad \left[-\frac{1}{y}, -1 \right] \quad \text{مجموعه ها را جدا جدا در نظر بگیریم} \quad (7)$$

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$$\left| \frac{y^{n-1}}{dx} \right| \rightarrow [0, +\infty) - \left\{ \frac{y}{x} \right\}$$

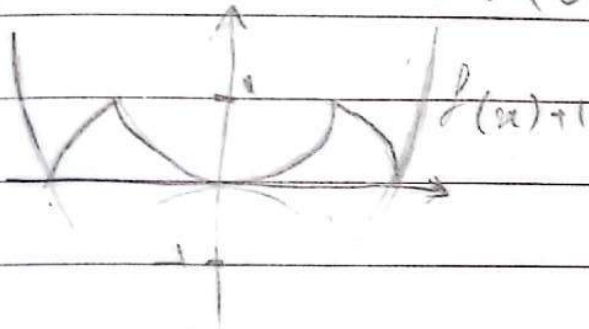
$$\sqrt{\frac{9x-1}{-1+dx}} [0, +\infty) - \left\{ \frac{y}{x} \right\}$$

(A)

$$x/|x| - y/x \begin{cases} x > 0 & x^y - yx & (x-1)^y - 1 & [-1, +\infty) \\ x < 0 & -x^y - yx & -(x+1)^y + 1 & (-\infty, +1] \end{cases}$$

(12)

(9)



$$|f(x)+1| = ?$$

(10)