

عسل قادری یازم درسه (6)

19,0

$$f(x) = \left(\frac{1}{x}\right)^{x-1} - 1$$

سوال ←

$$y = \sqrt{x^x(f(x+1))} \rightarrow x^x(f(x+1)) \geq 0$$

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$$\rightarrow x^x \left(\left(\frac{1}{x}\right)^{x-1} - 1 \right)$$

$$\left(\frac{1}{x}\right)^{x-1} - 1 \rightarrow x-1=0 \rightarrow x=1 \rightarrow \frac{0}{+|-|1} \rightarrow Pf \in [0, +1]$$

$$f(x) \leq \sqrt{x+|x+2|} \rightarrow x+|x+2| \geq 0 \rightarrow \begin{cases} x+x+2 \geq 0 \rightarrow 2x+2 \geq -x \geq -1 \\ x-x-2 \geq 0 \Rightarrow -2 \leq x \end{cases}$$

سوال ←

$$\rightarrow Pf = [-1, +\infty) \rightarrow f(0) \rightarrow f(-x) \in (-\infty, 1]$$

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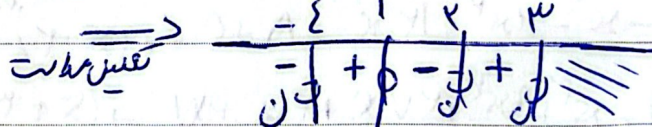
$$y = \sqrt{\frac{x-1}{f(x)}}$$



سوال ←

$$f(x) \leq 0 \rightarrow x = 1, 3, -1$$

$$x-1 \leq 0 \rightarrow x \leq 1$$



$$\rightarrow Pf = (-1, 1] \cup (3, \infty)$$

$$\frac{ax^2 - vx^2 - \{x - r\}}{ax^2 - vx^2 - \{x - r\}} \cdot \frac{rx^2 + ax + b}{rx^2 - vx^2 + 1}$$

$$a = -1 \leftarrow \text{سوال}$$

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$$-max^2 - (v+r)x^2 - \{x - r\} + max^2 + max^2x^2 + max^2b$$

$$b = -r, a^2 - vb - v^2r \rightarrow ar + a - v - r^2 = 0 \rightarrow a^2 + 1x$$

$$(-v - r^2 + max^2)x^2 + (-1 + vb) - r = 0$$

$$\sqrt{-(a+b)} = \sqrt{-(-1-3)} = \sqrt{4} = 2$$

$$f(x) = x^3 + x \quad f\left(\frac{2}{x}\right) = \frac{4}{x^3} + \frac{x}{2} \quad \leftarrow \text{سوال 5}$$

$$y = \sqrt{f(x)f\left(\frac{2}{x}\right)} \geq 0 \rightarrow x^3 + x \geq \frac{4}{x^3} + \frac{x}{2} \geq 0 \quad (5)$$

$$\frac{x^4 + x^4 - 4 - \frac{1}{2}x^4}{x^3} \geq 0 \rightarrow x^4 = 4 \rightarrow +3 + +2 - 4 - \frac{1}{2} = 0$$

$$(x^2 - 2)(x^2 + 2x + 4) \geq 0 \rightarrow x^2 - 2 \geq 0$$

صورت مثبت
مخرج

$$x^2 - 2 \geq 0 \rightarrow x^2 \geq 2 \rightarrow x \geq \pm \sqrt{2}$$

$$\frac{(x^2 - 2)(x^2 + 2x + 4)}{x^3} \geq 0 \rightarrow \frac{x^2 - 2}{x^3} \geq 0 \rightarrow \frac{-2}{-4} = \frac{1}{2}$$

$$\rightarrow [-2, 0] \cup [2, +\infty)$$

$$f(x^3 + x) = 2x^2 - 1 \quad \begin{cases} x^3 + x = 2 \rightarrow x = 1 \\ x^3 + x = 1 \rightarrow x = 0 \end{cases} \quad \leftarrow \text{سوال 4}$$

$$f(1) + f(0) = f(1) = 2(1)^2 - 1 = 1 \rightarrow 1 + 0 = 1 \quad (5)$$

$$f(x) = x^3 - 4x^2 + 12x - 11 \rightarrow (x-1)^3 + 1 \quad \leftarrow \text{سوال 5}$$

$$g(x) = x^3 + 9x^2 + 12x + 2 \rightarrow (x+3)^3 - 2 \rightarrow (x+3)^3 - 2 = 0 \rightarrow x+3 = \sqrt[3]{2} \rightarrow x = \sqrt[3]{2} - 3$$

$$\rightarrow f(\sqrt[3]{2} + 2) = (\sqrt[3]{2} + 2 - 1)^3 + 1 = 1$$

$$\rightarrow \frac{-2}{10} = -\frac{1}{5} = \boxed{-2}$$

$$f(x) + g(x) = a + b\sqrt{x+c}$$

سوال ←

$$\rightarrow t = \sqrt{x-5} \rightarrow t^2 = x-5$$

$$f(x) = \sqrt{t^2 + 4 + 4 + 5 + 9} = \sqrt{(t+2)^2} = t+2$$

$$g(x) = \sqrt{t^2 - 4 + 4 + 5} = \sqrt{(t-2)^2} = t-2$$

$$\rightarrow \textcircled{1} g(x) + f(x) = t+2 + t-2 = 2t$$

$$\rightarrow \textcircled{2} g(x) + f(x) = t+2 + t-2 = 2t$$

$$\rightarrow 2t = 2\sqrt{x-5} \rightarrow a + b\sqrt{x+c} \rightarrow a=0, b=2, c=-5$$

$$\Rightarrow \frac{a+b}{c} = \frac{0+2}{-5} = \left(-\frac{1}{2}\right)$$

$$f(x) = \frac{x+2}{x^2-5x+3}$$

$$\rightarrow \frac{-2}{-1} + \frac{1}{-2} + \frac{3}{-2} +$$

سوال ←

$$\rightarrow R = \{1, 2\}$$

$$g(x) = \{(2, 1), (6, 0), (3, 2), (0, 4)\}$$

$$\rightarrow g(x) \cap f(x) = (2, 1) \rightarrow \frac{g}{f} = \frac{1}{-1} = \textcircled{-1}$$

تقریباً جدول جدول در $f(x)$ برگرداند

$$\frac{4}{3}$$

$$\rightarrow (2, -1) \left(0, \frac{4}{3}\right)$$

$$\left\{(2, -\frac{1}{2}), (0, 4)\right\}$$

$$f(2x) = \left\{\left(\frac{1}{2}, 2\right), \left(\frac{3}{2}, -1\right), (2, 2), \left(-\frac{1}{2}, 4\right)\right\}$$

سوال ←

$$f(x^2) = (1, 2), (-1, 2), (\sqrt{3}, -1), (-\sqrt{3}, -1), (2, 2), (-2, 2)$$

$$2g(x) + 1 = \{(-2, 1), (1, 3), (3, 9), (-1, 1)\}$$

$$\frac{2f}{g} \Rightarrow 2f = \{(1, 4), (3, -2), (4, 4), (-1, 4)\}$$

$$g = \{(-2, 3), (1, -1), (3, 2), (-1, 0)\}$$

$$\frac{2f}{g} = \{(1, -1), (3, -1), (-1, 1), (-1, 1)\}$$