

Subject:

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14

1 A دوزم

سارینا رضوی

2

3 $\lim_{x \rightarrow 2} \frac{2x - a}{x^2 + ax + b} = -\infty \xrightarrow[\text{در مخرج}]{\text{بیش ضاعف}} \lim_{x \rightarrow 2} \frac{2x - a}{(x - 2)^2} = \frac{-1}{0^+} = -\infty$ |

5 $a = -2 \quad b = +2 \rightarrow a + b = 0$ ✓

(2)

6

7 $\lim_{x \rightarrow \sqrt[3]{2}} \frac{x}{x^3 + ax + b} = +\infty \xrightarrow[\text{در مخرج}]{\text{بیش ضاعف}} \lim_{x \rightarrow \sqrt[3]{2}} \frac{x}{(x - \sqrt[3]{2})^2} = \frac{\sqrt[3]{2}}{0^+} = +\infty$ |

9 $a = -\sqrt[3]{2^2} \quad b = \sqrt[3]{2^3} \rightarrow \left[\frac{\sqrt[3]{2^2}}{-\sqrt[3]{2^2}} \right] = -1$ ✓

(2)

11

12 $\lim_{x \rightarrow (\frac{1}{\sqrt{2}})^+} \frac{[-x] + a}{|\frac{\sqrt{2}}{2}x + a| + a} = -\infty \rightarrow \lim_{x \rightarrow (\frac{1}{\sqrt{2}})^+} \frac{a - 1}{|\frac{\sqrt{2}}{2}x + a| + a} \rightarrow \lim_{x \rightarrow (\frac{1}{\sqrt{2}})^+} \frac{a - 1}{|\frac{1}{2} + a| + a} = -\infty$ |

14 $\rightarrow \frac{1}{2} + 2a = 0 \checkmark \rightarrow a = -\frac{1}{4}$

15 $\rightarrow \frac{1}{2} = 0$ غلط

$[a] = -1$ ✓

(2)

16

17 $\lim_{x \rightarrow (\frac{1}{2})^+} \frac{14x - [-\frac{2}{x^2}]}{2x^2 + [\frac{2}{x^2}]} = \lim_{x \rightarrow (\frac{1}{2})^+} \frac{14x - (-9)}{2x^2 + 12} = \lim_{x \rightarrow (\frac{1}{2})^+} \frac{14x + 9}{2x^2 + 12} = +\infty$ |

(2)

19

20 $\lim_{x \rightarrow 1^+} \frac{x^{2-2} - 2}{x^2 - 1} = \lim_{x \rightarrow 1^+} \frac{x^{2-2}}{x^2 - 1} \xrightarrow{\text{hop}} \lim_{x \rightarrow 1^+} \frac{2x}{2x} = \frac{1}{1} \checkmark$ |

(2)

22 $\lim_{x \rightarrow -1} \frac{x^2 + 10x + 14}{14 + 4\sqrt{x}} = \lim_{x \rightarrow -1} \frac{(x+1)(x+7)}{14 + 4\sqrt{x}} \xrightarrow{\text{hop}} \lim_{x \rightarrow -1} \frac{(x+1)(\sqrt{x})}{2} = -12$ |

(2)

24 $\lim_{x \rightarrow 0^-} \frac{\sqrt{2+2x} - \sqrt{2-x}}{\sqrt{1-\cos x}} \times \frac{\sqrt{2} \cancel{x}}{2 \cdot 2} \times \frac{0 \cdot 2}{\frac{0 \cdot 2}{2 \cdot 2}} = \lim_{x \rightarrow 0^-} \frac{2x}{1 - \cos x} \times \frac{1}{2} \rightarrow \lim_{x \rightarrow 0^-} \frac{2x}{\frac{x^2}{2}} = \infty$ |

26 $\lim_{x \rightarrow 0} \frac{K + \cos \sqrt{2}x}{Kx^2} = \infty \xrightarrow{\text{L'Hop}} \lim_{x \rightarrow 0} \frac{K+1 - ax^2}{Kx^2} = \infty \rightarrow \frac{0}{0} \rightarrow K+1=0 \rightarrow K=-1$ |

(1)

Sayeh Roshan

$\lim_{x \rightarrow 0} \frac{-ax^2}{-x^2} = \infty \rightarrow a = \infty$

$\frac{a}{K} = -\infty$

$\frac{a}{K} = \frac{4}{-1} = -4$

$\lim_{x \rightarrow 0} \frac{-1 + \cos(\sqrt{a}x)}{-x^2} \xrightarrow{\text{L'Hop}} \lim_{x \rightarrow 0} \frac{-1 + 1 - \frac{(\sqrt{a}x)^2}{2}}{-x^2} = \lim_{x \rightarrow 0} \frac{-\frac{ax^2}{2}}{-x^2} = \frac{a}{2} \rightarrow \frac{a}{2} = 2 \rightarrow a = 4$

$$\lim_{x \rightarrow 0^-} \frac{\sqrt{1+x} - \sqrt{1-x}}{\sqrt{1-\cos x}} \times \frac{\sqrt{1+x} + \sqrt{1-x}}{\sqrt{1+x} + \sqrt{1-x}} \times \frac{\sqrt{1+\cos x}}{\sqrt{1+\cos x}} \rightarrow \lim_{x \rightarrow 0^-} \frac{1+x-1+x}{\sqrt{1-\cos^2 x}} \times \frac{\sqrt{1+\cos x}}{\sqrt{2}} =$$

سوال ۷

$$\lim_{x \rightarrow 0^-} \frac{f(x) \times \sqrt{f}}{| \sin x | \times \sqrt{f}} = \lim_{x \rightarrow 0^-} \frac{f(x) \times \sqrt{f}}{-\sqrt{f} \sin x} \xrightarrow{\text{محدودگی}} \lim_{x \rightarrow 0^-} \frac{x}{\sin x} \times \frac{\sqrt{f}}{-\sqrt{f}} = -1$$


Sinx

$$\lim_{x \rightarrow \frac{\pi}{2}^+} \frac{x\sqrt{x-\frac{\pi}{2}}}{\sqrt{x-\frac{\pi}{2}}\sqrt{x+\frac{\pi}{2}}} + \frac{x\sqrt{x-\frac{\pi}{2}}}{\sqrt{x-\frac{\pi}{2}}\sqrt{x+\frac{\pi}{2}}} = \lim_{x \rightarrow \frac{\pi}{2}^+} \left(\frac{x}{\sqrt{x+\frac{\pi}{2}}} + \frac{x(\sqrt{x-\frac{\pi}{2}})}{\sqrt{x-\frac{\pi}{2}}\sqrt{x+\frac{\pi}{2}}} \times \frac{\sqrt{x+\frac{\pi}{2}}}{\sqrt{x+\frac{\pi}{2}}} \right) \rightarrow$$

سوال ۹

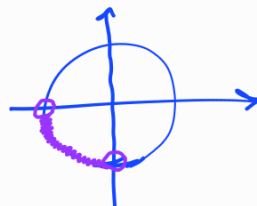
$$\lim_{x \rightarrow \frac{\pi}{2}^+} \left(\frac{x}{\sqrt{x+\frac{\pi}{2}}} + \frac{x(x-\frac{\pi}{2})}{(\sqrt{x-\frac{\pi}{2}}\sqrt{x+\frac{\pi}{2}})(\sqrt{x+\frac{\pi}{2}})} \right) = \lim_{x \rightarrow \frac{\pi}{2}^+} \left(\frac{x}{\sqrt{x+\frac{\pi}{2}}} + \frac{x\sqrt{x-\frac{\pi}{2}}}{(\sqrt{x+\frac{\pi}{2}})(\sqrt{x+\frac{\pi}{2}})} \right) = \lim_{x \rightarrow \frac{\pi}{2}^+} \frac{x}{\sqrt{x+\frac{\pi}{2}}} + 0$$

$$\rightarrow \frac{\sqrt{f}}{\sqrt{f}} = \sqrt{\frac{f}{f}} = \sqrt{\frac{x}{x+\frac{\pi}{2}}}$$

$$\begin{cases} \lim_{x \rightarrow (-1)^+} \frac{1-K[x]}{x^2-1} = \lim_{x \rightarrow (-1)^+} \frac{1-K(-1)}{0^-} = \frac{1+K}{0^-} = -\infty \rightarrow 1+K > 0 \rightarrow K > -1 \quad (I) \\ \lim_{x \rightarrow (-1)^-} \frac{1-K[x]}{x^2-1} = \lim_{x \rightarrow (-1)^-} \frac{1-K(-1)}{0^+} = \frac{1+K}{0^+} = -\infty \rightarrow 1+K < 0 \rightarrow K < -\frac{1}{r} \quad (II) \end{cases}$$

سوال ۱۰

$$(I) \cap (II) \rightarrow -1 < K < -\frac{1}{r} \rightarrow \begin{cases} -\pi < K\pi < -\frac{\pi}{r} \\ -1 < \cos K\pi < 0 \end{cases}$$



رسمی