

Subject:

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1 A دوزم

سارینا رضوی

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

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

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

$$9 a = -\sqrt[3]{2^2} \quad b = \sqrt[3]{2^4} \rightarrow \left[\frac{\sqrt[3]{2^4}}{-\sqrt[3]{2^2}} \right] = -1$$

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$$12 \lim_{x \rightarrow (\frac{1}{\sqrt{2}})^+} \frac{[-x] + a}{|\frac{\sqrt{2}}{2}x + a| + a} = -\infty \rightarrow \lim_{x \rightarrow (\frac{1}{\sqrt{2}})^+} \frac{a - 1}{|\frac{\sqrt{2}}{2}x + a| + a} \rightarrow \lim_{x \rightarrow (\frac{1}{\sqrt{2}})^+} \frac{a - 1}{|\frac{1}{2} + a| + a} = -\infty \quad |3$$

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

$$15 \rightarrow \frac{1}{2} = 0 \text{ غلط} \quad [a] = -1$$

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$$17 \lim_{x \rightarrow (\frac{1}{2})^+} \frac{14x - [-\frac{2}{x^2}]}{2x^2 + [\frac{2}{x^2}]} = \lim_{x \rightarrow (\frac{1}{2})^+} \frac{14x - (-9)}{2x^2 + 12} = \lim_{x \rightarrow (\frac{1}{2})^+} \frac{14x + 9}{2x^2 + 12} = +\infty \quad |4$$

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$$20 \lim_{x \rightarrow 1^+} \frac{x^{2-2} - 1}{x^2 - 1} = \lim_{x \rightarrow 1^+} \frac{x^{2-2} - 1}{x^2 - 1} \xrightarrow{\text{h.o.p}} \lim_{x \rightarrow 1^+} \frac{2x}{2x} = \frac{1}{1} \quad |5$$

$$22 \lim_{x \rightarrow -1} \frac{x^2 + 10x + 14}{14 + 4\sqrt{x}} = \lim_{x \rightarrow -1} \frac{(x+1)(x+7)}{14 + 4\sqrt{x}} \xrightarrow{\text{h.o.p}} \lim_{x \rightarrow -1} \frac{(x+1)(\sqrt{x})}{2} = -12 \quad |6$$

$$24 \lim_{x \rightarrow 0^-} \frac{\sqrt{1+\cos x} - \sqrt{1-\cos x}}{\sqrt{1-\cos x}} \times \frac{\sqrt{1+\cos x}}{1+\cos x} \times \frac{1-\cos x}{1-\cos x} = \lim_{x \rightarrow 0^-} \frac{\cos x}{1-\cos x} \times \frac{1}{1} \rightarrow \lim_{x \rightarrow 0^-} \frac{2x}{\frac{x^2}{2}} = \infty \quad |7$$

$$26 \lim_{x \rightarrow 0} \frac{k + \cos \sqrt{2}x}{kx^2} = \infty \xrightarrow{\text{L'Hôpital}} \lim_{x \rightarrow 0} \frac{k+1 - 2x}{kx^2} = \infty \rightarrow \frac{0}{0} \rightarrow k+1=0 \rightarrow k=-1 \quad |8$$

Sayeh Roshan

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

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