سارا اعتمادی

Subject :
Year: Month: Day:

$\lim_{x\to 2} \frac{2x-5}{x^2+ax+b} = -\infty$ $\frac{-}{0^+} = -\infty$ ۱

مخرج باید 0^+ باشد

$(x-2)^2 = x^2-4x+4$

$a=-4$ $b=4$ $a+b=0$

$\lim_{x\to (\sqrt[3]{4})} \frac{x}{x^2+ax+b} = +\infty$ $\left[\frac{b}{a}\right] = ?$ -۲

$\frac{+}{0^+} \rightsquigarrow (x-\sqrt[3]{4})^2 = x^2 \underbrace{-2\sqrt[3]{4}}_{a} + \underbrace{\sqrt[3]{4^2}}_{b}$ $\frac{4^{\frac{2}{3}}}{-2\times 4^{\frac{1}{3}}} = \frac{2^{\frac{4}{3}}}{2^{\frac{5}{3}}} = -\left(\frac{1}{2}\right)^{\frac{1}{3}}$

$\left[-\sqrt[3]{\frac{1}{2}}\right] = -1$

$\sqrt{3} \simeq 1/7$

$\lim_{x\to \left(\frac{1}{\sqrt{3}}\right)^+} \frac{[-x]+a}{\left|\frac{\sqrt{3}}{3}x+a\right|+a} = -\infty$ $\underbrace{\left|\frac{1}{3}+a\right|}_{\text{مثبت باید بیرون بیاد}}+a=0$ -۳

$\longrightarrow \frac{1}{3}+2a=0$

$\left(a>-\frac{1}{3}\right)$ $a=-\frac{1}{6}$

$[a]=-1$

$\lim_{x\to\left(-\frac{1}{2}\right)^+} \frac{16x-\left[\frac{-2}{x^2}\right]}{24x+\left[\frac{3}{x^2}\right]} = \frac{16x+9}{24x+12} = \frac{1}{0^+} = +\infty$ $x>-\frac{1}{2}$ -۴

$x^2<\frac{1}{4}$

$\frac{3}{x^2}>12 \longleftarrow \frac{1}{x^2}>4$

$-\frac{2}{x^2}<-8$

NOTEBOOK POOYA

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ریاضی عمومی

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$$\lim_{x\to 2^+} \frac{x^2-4}{x^3-[x^3]} = \frac{(\cancel{x-2})(x+2)}{(\cancel{x-2})(x^2+2x+4)} = \frac{4}{12} = \frac{1}{3}$$

$\frac{0}{0}$ $\qquad [x^3] \to 8$

$(\sqrt[3]{x})^3+2^3$

$$\lim_{x\to -8} \frac{x^2+10x+16}{12+6\sqrt[3]{x}} = \frac{(x+2)(x+8)}{6(2+\sqrt[3]{x})} = \frac{(x+2)(\cancel{\sqrt[3]{x}+2})(\sqrt[3]{x^2}-2\sqrt[3]{x}+4)}{6(\cancel{2+\sqrt[3]{x}})}$$

$\frac{0}{0}$

$$\Longrightarrow \frac{(-6)(4+4+4)}{6} = -12$$

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$$\lim_{x\to 0^-} \frac{\sqrt{2+3x}-\sqrt{2-x}}{\sqrt{1-\cos x}} \times \frac{P}{P} = \frac{\overset{4x}{(2+3x-2+x)}}{\sqrt{1-(1-\frac{x^2}{2})}\ \underbrace{(\sqrt{2+3x}+\sqrt{2-x})}_{2\sqrt{2}}} = \frac{-4}{2} = -2$$

$\frac{0}{0}$ $\qquad \frac{|x|}{\sqrt{2}} \to -x$

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$$\lim_{x\to 0} \frac{k+\cos(\sqrt{a}\,x)}{kx^2} = 3 \xrightarrow{HOP} \frac{-\sin(\sqrt{a}\,x)\sqrt{a}}{2kx} \xrightarrow{HOP}$$

$$\lim_{x\to 0} \frac{-a\cos(\sqrt{a}\,x)}{2k} = \frac{-a}{2k} = 3 \qquad \frac{a}{k} = -6$$

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۵۲° $\lim\limits_{x \to (۳a)^+} \dfrac{۲\sqrt{x-۳a} + ۳\sqrt{x} - \sqrt{۲۷a}}{\sqrt{x^۲ - ۹a^۲}}$ ۹

$$\lim_{x \to ۳a^+} \frac{۲\cancel{\sqrt{x-۳a}}}{\cancel{\sqrt{x-۳a}}\sqrt{x+۳a}} + \underbrace{۳\left(\frac{\sqrt{x} - \sqrt{۳a}}{\sqrt{x-۳a}\sqrt{x+۳a}} \times \frac{\sqrt{x} + \sqrt{۳a}}{\sqrt{x} + \sqrt{۳a}}\right)}$$

$$x - ۳a = \frac{\cancel{\sqrt{x-۳a}}\sqrt{x-۳a}}{\cancel{\sqrt{x-۳a}} \cdot \sqrt{x+۳a} \cdot \sqrt{x} + \sqrt{۳a}} = ۰$$

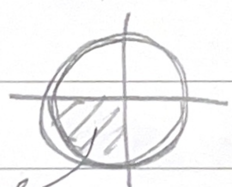
$$= \frac{۲}{\sqrt{۶a}}$$

$$\xrightarrow{(-۱)^+} \quad \frac{۱+k}{۰^-} = -\infty \qquad ۱+k > ۰ \qquad k > -۱$$ ۱۵

$$\xrightarrow[(-۱)^-]{} \quad \frac{۱+۲k}{۰^+} = -\infty \qquad ۱+۲k < ۰ \qquad k < -\frac{۱}{۲}$$

$$-۱ < k < -\frac{۱}{۲}$$

$$-\pi < k\pi < -\frac{\pi}{۲} \qquad -۱ < \cos k\pi < ۰$$



ناحیه سوم