آیدا نامداری
دوازدهم دختران B
تکلیف ۲۰

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$$\lim_{x\to 2}\frac{2x-5}{x^2+ax+b}=-\infty \qquad \frac{-1}{(\quad)} \qquad + \mid^{0} +$$

باید 0^+ شود

$(x-2)^2$

$x^2-4x+4 \qquad a=-4,\ b=4 \qquad a+b=0$

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$$\lim_{x\to\sqrt[3]{4}}\frac{x}{x^2+ax+b}=+\infty \qquad \frac{+}{0^+}$$

$(x-\sqrt[3]{4})^2 \qquad x^2-2x\sqrt[3]{4}+\sqrt[3]{16} \qquad \left[\frac{b}{a}\right] \qquad \left[\frac{\sqrt[3]{16}}{-2\sqrt[3]{4}}\right]$

$a=-2\sqrt[3]{4}$

$b=\sqrt[3]{16}$

$\left[\frac{\sqrt[3]{4}}{-2}\right]=-1$

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$$\lim_{x\to\frac{1}{\sqrt{3}}^+}\frac{[-x]+a}{\left|\frac{\sqrt{3}}{3}x+a\right|+a}=-\infty \qquad \frac{-1+a}{0^+}=-\infty \qquad \left[-\frac{1}{9}\right]=-1$$

$\left|\frac{1}{3}+a\right|+a=0 \qquad \frac{1}{3}+2a=0 \qquad -2a=\frac{1}{3} \qquad a=-\frac{1}{6}$

$-\frac{1}{3}-a+a=0 \quad \times$

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$$\lim_{x\to(-\frac{1}{2})^+}\frac{16x-\left[-\frac{2}{x^2}\right]}{24x+\left[\frac{3}{x^2}\right]} \qquad \frac{16x+8}{24x+12}\xrightarrow{hop}\frac{16}{24}\to\frac{4}{6}\to\frac{2}{3}$$

$\frac{-2}{\frac{1}{4}} \quad [-8^+]\to -8$

$\frac{3}{\frac{1}{4}}\to 12^+$

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$$\lim_{x\to 2^+}\frac{x^2-4}{x^3-[x^3]}=\frac{x^2-4}{x^3-8}\xrightarrow{hop}\frac{2x}{3x^2}=\frac{4}{12}=\frac{1}{3}$$

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$$\lim_{x\to -8}\frac{x^2+10x+16}{12+6\sqrt[3]{x}}\xrightarrow{hop}\frac{2x+10}{\frac{6}{3\sqrt[3]{x^2}}}=\frac{-6}{\frac{6}{12}}\quad \frac{-6\times 12}{6}=-12$$

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$\boxed{7}$

$$\lim_{x\to 0^-} \frac{\sqrt{2+3x}-\sqrt{2-x}}{\sqrt{1-\cos x}} \qquad \frac{\sqrt{2+3x}-\sqrt{2-x}}{\sqrt{2\sin^2\frac{x}{2}}} = \frac{\sqrt{2+3x}-\sqrt{2-x}}{-\sqrt{2}\sin\frac{x}{2}} \xrightarrow{hop}$$

$$\sqrt{2}\,\underbrace{\left|\sin\frac{x}{2}\right|}_{-}$$

$$\frac{\frac{3}{2\sqrt{2+3x}}+\frac{1}{2\sqrt{2-x}}}{-\sqrt{2}\times \underset{1}{\cancel{\cos\frac{x}{2}}}\times\frac{1}{2}} \qquad \frac{\frac{3}{2\sqrt{2}}+\frac{1}{2\sqrt{2}}}{\frac{-\sqrt{2}}{2}} \qquad \frac{\frac{4}{2\sqrt{2}}}{\frac{-\sqrt{2}}{2}} = \frac{8}{-4} = -2$$

$\boxed{8}$

$$\lim_{x\to 0} \frac{k+\cos(\sqrt{a}x)}{kx^2} = 3 \qquad \frac{-1+\cos(\sqrt{a}x)}{-x^2} \xrightarrow{hop} \frac{-\sin\sqrt{a}x\times\sqrt{a}}{-2x} \xrightarrow{hop}$$

$$\underbrace{k+1}_{0}=0 \to k=-1$$

$$\frac{-\overset{-1}{\cancel{\cos\sqrt{a}x}}\times\sqrt{a}\times\sqrt{a}}{-2} \qquad \frac{-a}{-2} = \frac{a}{2} = 3 \qquad a=6 \qquad \frac{6}{-1} = -6$$

$\boxed{9}$

$$\lim_{x\to 3a^+} \frac{2\sqrt{x-3a}+3\sqrt{x}-\overset{3\sqrt{3a}}{\sqrt{27a}}}{\sqrt{x^2-9a^2}} \to \frac{0}{0}$$

$$\sqrt{x+3a}\times\sqrt{x-3a}$$

$\boxed{10}$ ناحیه سوم

$$\lim_{x\to -1} \frac{1-k\overset{-1}{[x]}}{x^2-1} = -\infty \qquad \nearrow -1^+ : \quad \frac{1+k}{0^-} = -\infty \qquad \searrow -1^- : \quad \frac{1+2k}{0^+} = -\infty$$

$-\frac{\pi}{2}$ ، $-\pi$ $\qquad \cos -\pi \quad -1$ $\qquad \cos -\frac{\pi}{2} \quad 0$

$1+k>0 \qquad k>-1$

$1+2k<0 \qquad 2k<-1 \qquad k<-\frac{1}{2}$

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