نام و نام خانوادگی ......محمودی...... ۱۷٫۵ پاسخنامه تشریحی تکلیف شماره ..۲۵.. کلاس ......۱۲A......

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$\lim\limits_{x\to 2} \dfrac{2x-5}{x^2+ax+b} \Rightarrow$ $4-5=(-1)$, $\dots-\infty$ $\Rightarrow \dfrac{-1}{4+2a+b} \Rightarrow 4+2a+b=0^+$ (1) / (2) $\Rightarrow$ $x=2$, $a<0$, $b>0$ $\Rightarrow$

$a^2-4b=0 \Rightarrow a^2=4b \Rightarrow \dfrac{a^2}{4}=b \Rightarrow$ (1) , (2) $\Rightarrow 4+2a+\dfrac{a^2}{4}=0 \overset{\times 4}{\Rightarrow}$

$a^2+8a+16=0 \Rightarrow a=-4 \Rightarrow b=4 \Rightarrow b+a=0$ ✓

2

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$x\to\sqrt[3]{4} \Rightarrow \dfrac{\sqrt[3]{4}-(+)}{2\sqrt[3]{2}+\sqrt[3]{4}a+b}=+\infty$ (1) $\Rightarrow a^2=4b \Rightarrow \dfrac{a^2}{4}=b$ (2)

$x=\sqrt[3]{4}$

(1) , (2) $\Rightarrow \dfrac{a^2}{4}+\sqrt[3]{4}a+2\sqrt[3]{2} \overset{\times 4}{\Rightarrow} a^2+4\sqrt[3]{4}a+8\sqrt[3]{2} \Rightarrow (a+2\sqrt[3]{2})^2 \Rightarrow a=-2\sqrt[3]{2}$ / $b=2\sqrt[3]{2}$

$\left[\dfrac{b}{a}\right]=\left[\dfrac{2\sqrt[3]{2}}{-2\sqrt[3]{2}}\right]=-1$ ✓

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$\dfrac{[x]+a}{\left|\frac{\sqrt{3}}{3}x+a\right|+a}=-\infty \Rightarrow \dfrac{-1+a}{\cancel{|\sqrt{3}+3a|+a\to 0^+}}=-\infty \Rightarrow \begin{cases}-1+a\Rightarrow(-)\\ \sqrt{3}+3a=0 \Rightarrow a=-\frac{\sqrt{3}}{3}\end{cases}$

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$[a]=\left[-\dfrac{\sqrt{3}}{3}\right]=-1$ ✓

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$\dfrac{16x-\left[\frac{-2}{x^2}\right]}{24x+\left[\frac{3}{x^2}\right]}$, $x\to -\frac{1}{2}^+$ $= \begin{cases}16(-\frac{1}{2}) \Rightarrow -8^+-\left[\frac{-2}{(-\frac{1}{2})^2}\right] \Rightarrow \\ 24\times -\frac{1}{2} \Rightarrow -12+\left[\frac{3}{x^2}\right] \Rightarrow \frac{0}{0}\end{cases} \Rightarrow \dfrac{16x+9}{24x+12} \overset{x=-\frac{1}{2}}{\Rightarrow}$

$-12^+ + 12=0^+$

$\dfrac{+1}{0^+} \Rightarrow +\infty$ ✓

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$\dfrac{x^2-4}{x^3-[x^3]}$, $x\to 2^+$, $[x^3]\to 8$ $\Rightarrow \dfrac{(x-2)(x+2)}{(x-2)(x^2+2x+4)} \Rightarrow \dfrac{4}{12}=\dfrac{1}{3}$ ✓

2

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

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$$\frac{(x+2)(\sqrt[3]{x^2}-2\sqrt[3]{x}+4)}{6} \Longrightarrow x\to -8 \Longrightarrow \cancel{\frac{(-6)(10)}{}} = -10$$ ۶

$$= \frac{(-6)(12)}{6} = \boxed{-12}$$

$$\frac{\sqrt{2+3x}-\sqrt{2-x}}{\sqrt{1-\cos x}} \times \frac{\sqrt{2+3x}+\sqrt{2-x}}{\sqrt{2+3x}+\sqrt{2-x}}$$ و ~~هم‌ارزی $x\to0$~~ (مزدوج ضرب) $\Longrightarrow \frac{4x}{\sqrt{\frac{x^2}{2}}} \xRightarrow{|x|=-x} \Longrightarrow \frac{4\cancel{x}\times\sqrt{2}}{-\cancel{x}}$

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$$\Longrightarrow -4\sqrt{2}$$

$$\lim_{x\to0^-}\frac{\sqrt{2+3x}-\sqrt{2-x}}{\sqrt{1-\cos x}}\times\frac{\sqrt{2+3x}+\sqrt{2-x}}{\sqrt{2+3x}+\sqrt{2-x}}\times\frac{\sqrt{1+\cos x}}{\sqrt{1+\cos x}} \longrightarrow \lim_{x\to0^-}\frac{2+3x-2+x}{\sqrt{1-\cos^2 x}}\times\frac{\sqrt{1+\cos x}}{2\sqrt{2}} =$$ ۷

$$\lim_{x\to0^-}\frac{4x\times\sqrt{2}}{|\sin x|\times2\sqrt{2}} = \lim_{x\to0^-}\frac{4x\times\sqrt{2}}{-2\sqrt{2}\sin x} \xrightarrow{\text{فشردگی}} \lim_{x\to0^-}\underbrace{\frac{x}{\sin x}}_{1}\times\frac{4\sqrt{2}}{-2\sqrt{2}} = -2$$

$\sin x$

$$\frac{k+\cos(\sqrt{ax})\to 0}{kx^2\to 0} = 3 \Longrightarrow k+\cos 0 \Longrightarrow k+(+1)=0 \Longrightarrow k=-1$$

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هم‌ارزی $\Longrightarrow \frac{-1+\cos\sqrt{ax}}{-x^2} \Longrightarrow \frac{\frac{ax}{2}}{-x^2} \Longrightarrow \frac{a}{2}=3 \Longrightarrow \cancel{a=4}$ ۸

$a=+6$

$\Longrightarrow \frac{a}{k}$

-6

$$\frac{2\sqrt{x-3a}+3\sqrt{x}-\sqrt{27a}}{\sqrt{x^2-9a^2}} \Longrightarrow \frac{2\cancel{\sqrt{x-3a}}}{\cancel{\sqrt{x-3a}}\sqrt{x+3a}} + \frac{3(\sqrt{x}-\sqrt{3a})}{(\sqrt{x-3a})(\sqrt{x+3a})}\times\frac{\sqrt{x}+\sqrt{3a}}{\sqrt{x}+\sqrt{3a}} \to 0$$

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$x\to3a^+$ $$\frac{2}{\sqrt{x+3a}}+0 \xRightarrow{x\to3a} \Longrightarrow \frac{2}{\sqrt{6a}}$$ ✓

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$$\frac{1-k[x]}{(x-1)(x+1)}$$

$\to + \Longrightarrow \frac{1+k}{(x+1)(x-1)\to0^-} \Longrightarrow 1+k>0 \Longrightarrow k>-1$

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$\to - \Longrightarrow \frac{1+2k}{(x-1)(x+1)\to0^+} \Longrightarrow 1+2k<0 \Longrightarrow k<-\frac{1}{2}$

$-1<k<-\frac{1}{2}$ ۱۰

$(k\pi, \cos k\pi)$

ناحیه سوم ✓ $\Longleftarrow$ $(-\pi, -\frac{\pi}{2})$ $(-1, 0)$ $\Longleftarrow$