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نام و نام خانوادگی ......کسری ایرانی...... پاسخنامه تشریحی تکلیف شماره ...۱۹... کلاس ......جبر دهم A......

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$\lim_{x\to -2} 2(1+[-\frac{x}{2}])+a[\frac{x+2}{3}]$

-2^+: $x>-2 \to -x<2 \to -\frac{x}{2}<1 \to [-\frac{x}{2}]=0$

$x>-2 \to \frac{x+2}{3}>0 \to [\frac{x+2}{3}]=0$

$\lim_{x\to -2^+} 2\times(1+0)+a\times 0 = 2$

$x<-2 \to -x>2 \to -\frac{x}{2}>1 \to [-\frac{x}{2}]=1$

$x<-2 \to \frac{x+2}{3}<0 \to [\frac{x+2}{3}]=-1$

$\lim_{x\to -2^-} 2(1+1)+a(-1) = 4-a$

$4-a=2 \to a=2 \to [\frac{2}{3}]=0$

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$\lim_{x\to \frac{\pi}{6}^-} [2\sin x]-1 = 0-1 = -1$

$x<\frac{\pi}{6} \to \sin x<\frac{1}{2} \to 2\sin x<1 \to [2\sin x]=0$

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$8x^3 - x \xrightarrow{\text{مشتق}} 24x^2 - 1 \Rightarrow x_1 = \frac{1}{\sqrt{24}},\ x_2 = -\frac{1}{\sqrt{24}}$

$-\frac{1}{\sqrt{24}} \quad \frac{1}{\sqrt{24}}$

$+ \quad - \quad +$

$\lim_{x\to -\frac{1}{2}^+} [-\frac{1}{2}^+] = -1$ $\quad$ $\lim_{x\to -\frac{1}{2}^-} [-\frac{1}{2}^-] = -1$

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$x<-\frac{1}{2} \to \frac{1}{x}>-2 \to \frac{1}{x^2}<4 \to \frac{3}{x^2}<12 \to [\frac{3}{x^2}]=11$

$x<-\frac{1}{2} \to x^2>\frac{1}{4} \to -x^2<-\frac{1}{4} \to -\frac{1}{x^2}>-4 \to -\frac{2}{x^2}>-8 \to [-\frac{2}{x^2}]=-8$

$\lim_{x\to -\frac{1}{2}^-} \frac{10x-5+11}{16x-(-8)} = \frac{1}{-8^-+8} = \frac{1}{0^-} = -\infty$

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$\lim_{x\to 1^+} \frac{1-\cos^2\pi x}{1+\cos\pi x} = \lim_{x\to 1^+} \frac{(1-\cos\pi x)(1+\cos\pi x)}{1+\cos\pi x} =$

$\lim_{x\to 1^+} 1-\cos\pi x = 2$

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$$\lim_{x\to -1}\frac{\sqrt{2x+3}-\sqrt{3x+4}}{1+\sqrt[3]{x}}\times\frac{\sqrt{2x+3}+\sqrt{3x+4}}{\sqrt{2x+3}+\sqrt{3x+4}}\times\frac{1+\sqrt[3]{x^2}-\sqrt[3]{x}}{1+\sqrt[3]{x^2}-\sqrt[3]{x}}$$

$$=\lim_{x\to -1}\frac{2x+3-3x-4}{1+x}\times\frac{3}{2}=\lim_{x\to -1}\frac{(x+1)}{x+1}\times\frac{3}{2}=-\frac{3}{2}$$ ✓

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$$\lim_{x\to 1}\frac{2x-7\sqrt{x}+5}{2x-\sqrt{3x+1}}\times\frac{2x+\sqrt{3x+1}}{2x+\sqrt{3x+1}}=\lim_{x\to 1}\frac{4(\sqrt{x}-\frac{5}{2})(\sqrt{x}-1)}{(\sqrt{x}-1)(\sqrt{x}+1)(x+\frac{1}{4})}=$$

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$$\lim_{x\to 1}\frac{4\sqrt{x}-10}{(x+\frac{1}{4})(\sqrt{x}+1)}=\frac{-6}{5/2}=\frac{-12}{5}=-2.4$$

$$\lim_{x\to 1}\frac{(\sqrt{x}-1)(2\sqrt{x}-5)\times(2x+\sqrt{3x+1})}{4x^2-3x-1}=\lim_{x\to 1}\frac{(\sqrt{x}-1)(2\sqrt{x}-5)(4)}{(4x+1)(x-1)}=$$

$$(x-1)\to(\sqrt{x}-1)(\sqrt{x}+1)$$

$$\lim_{x\to 1}\frac{(2\sqrt{x}-5)(4)}{(4x+1)(\sqrt{x}+1)}=\frac{(-3)(4)}{5\times 2}=-1.2$$

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$$\lim_{x\to 0}\frac{a+\sqrt{bx+c}}{x}\xrightarrow{hop}\lim_{x\to 0}\frac{b}{2\sqrt{bx+c}}=\frac{1}{4}\to\frac{b}{2\sqrt{c}}=\frac{1}{4}\to b=\frac{\sqrt{c}}{2}$$

$$x=0\Rightarrow a+\sqrt{bx+c}=0\to a+\sqrt{c}=0\to a=-\sqrt{c}$$

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$$\frac{ab}{c}=\frac{\frac{\sqrt{c}}{2}\times-\sqrt{c}}{c}=\frac{-c}{2\times c}=-\frac{1}{2}$$ ✓

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$$\to 2\pi^+\quad x>-2\pi\to\frac{x}{\pi}>-2\to\left[\frac{x}{\pi}\right]=-2\quad\left(\frac{4}{3}<k<2\to-\frac{4}{3}>-k>-2\right.$$

$$\lim_{x\to-2\pi^+}\frac{4+k(-2)}{\sin x}=\frac{4-2k}{0^+}=+\infty\to 4-2k>0\to k<2\Big)\to[-k]$$

$$=-2$$ ✓

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$$\to 2\pi^-\quad x<-2\pi\to\frac{x}{\pi}<-2\to\left[\frac{x}{\pi}\right]=-3$$

$$\lim_{x\to-2\pi^-}\frac{4+k(-3)}{\sin x}=\frac{4-3k}{0^-}=+\infty\to 4-3k<0\to\boxed{\frac{4}{3}<k}$$

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$$\lim_{x\to 8}\frac{b\sqrt{2+\sqrt[3]{x}}}{ax-b}=\frac{0}{ax-b}\xrightarrow{\text{چون حد دارد}}ax-b=0\xrightarrow{x=8}8a=b\to\frac{b}{8}=a$$

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$$\lim_{x\to 8}\frac{b\sqrt{2+\sqrt[3]{x}}}{ax-b}\xrightarrow{hop}\lim_{x\to 8}\frac{b\times\frac{\frac{1}{3}}{2\sqrt{2+\sqrt[3]{x}}}}{a}=\lim_{x\to 8}\frac{8b}{b6\sqrt{2+\sqrt[3]{8}}}=\frac{2}{3}$$

$$\lim_{x\to 8}\frac{8a(\sqrt[3]{x}-2)}{a(x-8)\times 4}\to\lim_{x\to 8}\frac{2(\sqrt[3]{x}-2)}{(\sqrt[3]{x}-2)(\sqrt[3]{x^2}+4+2\sqrt[3]{x})}=\frac{2}{12}=\frac{1}{6}$$