$$\lim_{x\to -2} 2\left[\frac{2-x}{2}\right]+a\left[\frac{x+2}{3}\right]$$ حد دارد $\Rightarrow$

$\xrightarrow{-2^+} 2\left[2^-\right]+a\left[0^+\right]=2$ ‏ -۱

$\xrightarrow{-2^-} 2\left[2^+\right]+a\left[0^-\right]=4-a$

$f(-2^+)=f(-2^-)$

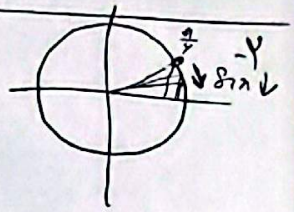
$4-a=2\to a=2$

$\to\left[\frac{a}{3}\right]=\left[\frac{2}{3}\right]=0$

د

آفرین ۱۹٫۵

$$\lim_{x\to(\frac{\pi}{4})^-}\left[2\sin x-1\right]\xrightarrow{2\sin(\frac{\pi}{4})<1}=\left[0^-\right]=-1$$ -۲



د

$$\lim_{x\to-\frac12}\left[8x^3-x\right]=\left[\frac{8\times(-1)}{8}-\left(-\frac12\right)\right]=\left[-\frac12\right]=-1$$ -۳

د

$$\lim_{x\to(-\frac12)^-}\frac{10x-5+\left[\frac{3}{x^2}\right]}{14x-\left[-\frac{2}{x^2}\right]}\to$$ -۴

$x<-\frac12\to x^2>\frac14\to\frac{1}{x^2}<4\to\frac{3}{x^2}<12\to\left[\frac{3}{x^2}\right]=11$

$x<-\frac12\to x^2>\frac14\to\frac{1}{x^2}<4\to\frac{2}{x^2}<8\to-\frac{2}{x^2}>-8\to\left[-\frac{2}{x^2}\right]=-8$

د

$$\to\lim_{x\to(-\frac12)^-}\frac{10x-5+11}{14x+8}=\frac{10x+6}{14x+8}=\frac{1}{0^-}=-\infty$$

$$\lim_{x\to1^+}\frac{\sin^2\pi x}{[x]+\cos\pi x}=\frac{\sin^2\pi x}{1+\cos\pi x}=\frac{1-\cos^2\pi x}{1+\cos\pi x}=\frac{(1-\cos\pi x)\cancel{(1+\cos\pi x)}}{\cancel{1+\cos\pi x}}=1-\cos\pi x$$ -۵

د

$$\lim_{x\to1^+}1-\cos\pi x=2$$

$$\lim_{x\to-1}\frac{\sqrt{2x+3}-\sqrt{3x+4}}{1+\sqrt[3]{x}}\times\frac{\sqrt{2x+3}+\sqrt{3x+4}}{\sqrt{2x+3}+\sqrt{3x+4}}\times\frac{1+\sqrt[3]{x^2}-\sqrt[3]{x}}{1+\sqrt[3]{x^2}-\sqrt[3]{x}}$$ -۶

۱٫۷۵

$-x-1$ $\cancel{-x-3}$

$$=\frac{\cancel{2x+3-3x-4}}{1+x}\times\frac{1+\sqrt[3]{x^2}-\sqrt[3]{x}}{\sqrt{2x+3}+\sqrt{2x+3}}=\frac{\overset{-1}{\cancel{-x-3}}}{\underset{-1}{\cancel{x+1}}}\times\frac{3}{2}=\cancel{-6}\quad -\frac{3}{2}$$

$2x+3-3x-4=-x-1$

$$\lim_{x\to1}\frac{2x-7\sqrt{x}+5}{4x-\sqrt{3x+1}}=\frac{(\sqrt{x}-1)(2\sqrt{x}-5)}{4x-\sqrt{3x+1}}\cdot\frac{4x+\sqrt{3x+1}}{4x+\sqrt{3x+1}}=\frac{\cancel{(\sqrt{x}-1)}(2\sqrt{x}-5)(4x+\sqrt{3x+1})}{\cancel{16x^2-3x-1}\to\cancel{(x-1)}(16x+1)\ \cancel{(\sqrt{x}-1)}(\sqrt{x}+1)}=\frac{-3\times4}{5\times2}=-6$$ -۷

۱٫۲۵

۵

$\sqrt{x}=a\to 2a^2-7a+5=0\xrightarrow{a+b+c=0} a_1=1,\ a_2=\frac52\to2(a-1)(a-\frac52)=(a-1)(2a-5)$

$2x-7\sqrt{x}+5=(\sqrt{x}-1)(2\sqrt{x}-5)$

$16x^2-3x-1=16(x-1)(x+\frac{1}{16})=(x-1)(16x+1)$

فاطمه [illegible]

۸-

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

چون مخرج صفر می‌شود پس صورت هم صفر خواهد و حد متناهی است

$$\longrightarrow a+\sqrt{c}=0 \to \boxed{a=-\sqrt{c}} \qquad \boxed{c=a^2}$$

$$\lim_{x\to 0}\frac{a+\sqrt{bx+c}}{x}\times\frac{a-\sqrt{bx+c}}{a-\sqrt{bx+c}}=\frac{a^2-bx-c}{x(a-\sqrt{bx+c})}\xrightarrow[a^2=c]{a=-\sqrt{c}}\frac{-b\cancel{x}}{\cancel{x}(a-\sqrt{bx+c})}$$

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

$$\to \frac{ab}{c}=\frac{a\times -\frac{a}{2}}{a^2}=\frac{-a^2}{2a^2}=-\frac{1}{2}$$

۹-

$$\lim_{x\to -2a}\frac{4+K[\frac{x}{a}]}{\sin x}=+\infty \quad \begin{cases}\xrightarrow{-2a^+}\dfrac{4+K[-2^+]}{\sin x}=\dfrac{4-2K}{0^+}\\[2ex] \xrightarrow{-2a^-}\dfrac{4+K[-2^-]}{\sin x}=\dfrac{4-3K}{\sin x\to 0^-}\end{cases}$$

$$\begin{cases}\dfrac{4-2K}{0^+}=+\infty\to 4-2K>0\to 2K<4\to K<2\\[2ex] \dfrac{4-3K}{0^-}=+\infty\to 4-3K<0\to 3K>4\to K>\dfrac{4}{3}\end{cases}\Rightarrow \frac{4}{3}<K<2\Rightarrow [-K]=-2$$

۱۰-

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

باید صفر باشد تا با رفع ابهام به جواب برسیم

$$\to \boxed{8a=b}$$

$$\xrightarrow{Hop}\frac{b\left(\dfrac{\frac{1}{3\sqrt[3]{x^2}}}{2\sqrt{2+\sqrt[3]{x}}}\right)}{a}=\frac{b(\frac{1}{48})}{a}=\frac{8\cancel{a}\times\frac{1}{48}}{\cancel{a}}=\frac{1}{6}$$

کاملاً صحیح

6

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

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

7

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

$$\lim \frac{(\cancel{\sqrt{x}-1})(2\sqrt{x}-5)\times 4}{(\cancel{x-1})(4x+1)} = \lim \frac{[2(1)-5]\times 4}{(4(1)+1)\times 2} = -1{,}2$$

$\sqrt{x}+1$