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نام و نام خانوادگی ...مشاده مقاله عابد........ پاسخنامه تشریحی تکلیف شماره ...۲۲... کلاس .دوازدهم دختر ۸........

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$f(x) = 2\left[\frac{2-x}{2}\right] + a\left[\frac{x+2}{3}\right]$

$\left[1-\frac{x}{2}\right] \qquad \left[\frac{x}{3}+\frac{2}{3}\right]$

$x=-2$ حد دارد $\Rightarrow \lim_{x\to -2^+} f(x) = \lim_{x\to -2^-} f(x) \Rightarrow$

$\lim_{x\to -2^-} f(x) = \lim_{x\to -2^-} 2\underbrace{\overbrace{\left[1-\frac{-2^-}{2}\right]}^{1^+}}_{2^+} + a\underbrace{\overbrace{\left[\frac{-2^-}{3}+\frac{2}{3}\right]}^{-1}}_{0^-} = 4 - a$

$\lim_{x\to -2^+} f(x) = \lim 2\underbrace{\overbrace{\left[1+1^-\right]}^{1}}_{2^-} + a\underbrace{\overbrace{\left[\frac{-2^+}{3}+\frac{2}{3}\right]}^{0}}_{0^+} = 2$

$\Rightarrow 4 - a = 2$

$\Rightarrow \boxed{2 = a}$

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

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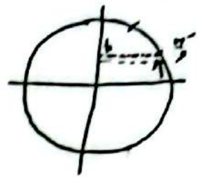
$\lim_{x\to (\frac{\pi}{6})^-} [2\underbrace{\sin x}_{\frac{1}{2}^-} - 1] = \lim_{x\to \frac{\pi}{6}^-} [1^- - 1] = \lim_{x\to \frac{\pi}{6}^-} [0^-] = \boxed{-1}$



$x < \frac{\pi}{6} \Rightarrow \sin x < \frac{1}{2} \Rightarrow 2\sin x < 1 \Rightarrow 2\sin x - 1 < 0$

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$\lim_{x\to -\frac{1}{2}} [8x^3 - x] = \lim_{x\to -\frac{1}{2}} [-1 + \frac{1}{2}] = \lim_{x\to -\frac{1}{2}} [-\frac{1}{2}] = \boxed{-1}$

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$\lim_{x\to -\frac{1}{2}^-} \frac{10x - 5 + \left[\frac{3}{x^2}\right] \to 1}{16x - \left[-\frac{2}{x^2}\right] \to 2} = \lim_{x\to -\frac{1}{2}^-} \frac{10x - 5 + 11}{16x + 8} = \lim_{x\to -\frac{1}{2}^-} \frac{\overbrace{-5-5+11}^{1}}{\underbrace{-8^- + 8}_{0^-}} = -\infty$

$x < -\frac{1}{2} \Rightarrow |x| > \frac{1}{2} \Rightarrow x^2 > \frac{1}{4} \Rightarrow \frac{3}{x^2} < 12 \to 1$

$x < -\frac{1}{2} \Rightarrow |x| > \frac{1}{2} \Rightarrow x^2 > \frac{1}{4} \Rightarrow \frac{2}{x^2} < 8 \Rightarrow -\frac{2}{x^2} > -8$

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$\lim_{x\to 1^+} \frac{\sin^2 \pi x}{[x] + \cos \pi x} = \lim_{x\to 1^+} \frac{\sin^2 \pi x}{1 + \cos \pi x}$: [illegible] $\Rightarrow \lim_{x\to 1^+} \frac{1 - \cos^2 \pi x}{1 + \cos \pi x} = \lim_{x\to 1^+} \frac{(1-\cos \pi x)\cancel{(1+\cos \pi x)}}{\cancel{1+\cos \pi x}}$

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

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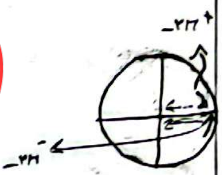
$$\lim_{x\to -1}\frac{\sqrt{2x+3}-\sqrt{3x+4}}{1+\sqrt[3]{x}} : \frac{0}{0}\ \text{ابهام} \Rightarrow \lim_{x\to -1}\frac{\sqrt{2x+3}-\sqrt{3x+4}}{1+\sqrt[3]{x}}\times\frac{\sqrt{2x+3}+\sqrt{3x+4}}{\sqrt{2x+3}+\sqrt{3x+4}}\times\frac{1+(\sqrt[3]{x})^2-\sqrt[3]{x}}{1+(\sqrt[3]{x})^2-\sqrt[3]{x}}$$ $$=\lim_{x\to -1}\frac{-\cancel{(1+x)}(1+(\sqrt[3]{x})^2-\sqrt[3]{x})}{\cancel{(1+x)}(\sqrt{2x+3}+\sqrt{3x+4})}=\boxed{\frac{-3}{2}}$$ ۲	۶
$$\lim_{x\to 1}\frac{2x-7\sqrt{x}+5}{2x-\sqrt{3x+1}}\xrightarrow{HoP}\lim_{x\to 1}\frac{2-\frac{7}{2\sqrt{x}}}{2-\frac{3}{2\sqrt{3x+1}}}=\lim_{x\to 1}\frac{2-\frac{7}{2}}{2-\frac{3}{4}}=\frac{-\frac{3}{2}}{\frac{5}{4}}=-\frac{12}{10}=\boxed{-\frac{6}{5}}$$ ۲	۷
$$\lim_{x\to 0}\frac{a+\sqrt{bx+c}}{x}=\frac{1}{4}\xrightarrow{HoP}\lim_{x\to 0}\frac{\frac{b}{2\sqrt{bx+c}}}{1}=\frac{1}{4}\Rightarrow\lim_{x\to 0}\frac{b}{2\sqrt{c}}=\frac{1}{4}\Rightarrow\frac{b}{\sqrt{c}}=\frac{1}{2}\Rightarrow 2b=\sqrt{c}\Rightarrow b=\frac{\sqrt{c}}{2}$$ $$a+\sqrt{bx+c}\xrightarrow{x=0}a+\sqrt{c}=0\Rightarrow a=-\sqrt{c}\quad /\quad \frac{ab}{c}=\frac{(-\sqrt{c})(\sqrt{c})}{2c}=-\frac{1}{2}$$ ۲	۸
$$\lim_{x\to -2\pi}\frac{4+k[\frac{x}{\pi}]}{\sin x}\ \begin{cases}\lim_{x\to -2\pi^+}\frac{4+k[\frac{x}{\pi}]}{\sin x}=\lim_{x\to -2\pi^+}\frac{4-2k}{\underbrace{\sin x}_{0^+}}=+\infty\Rightarrow 4-2k>0\Rightarrow k<2\\ \lim_{x\to -2\pi^-}\frac{4+k[\frac{x}{\pi}]}{\sin x}=\lim_{x\to -2\pi^-}\frac{4-3k}{\underbrace{\sin x}_{0^-}}=+\infty\Rightarrow 4-3k<0\Rightarrow k>\frac{4}{3}\end{cases}\xrightarrow{\cap}\frac{4}{3}<k<2$$ تابع صعودی  $$\Rightarrow -2<-k<-\frac{4}{3}\Rightarrow\boxed{[-k]=-2}$$ ۲	۹
$$\lim_{x\to 8}\frac{b\sqrt{2+\sqrt[3]{x}}-2b}{ax-b}\xrightarrow[\Rightarrow ax-b=0\ \xrightarrow{x=8}\ 8a=b]{\text{پاسخ حد حقیقی و غیر صفر}}\lim_{x\to 8}\frac{8a(\sqrt{2+\sqrt[3]{x}}-2)}{a(x-8)}\xrightarrow{a\neq 0}\lim_{x\to 8}\frac{8(\sqrt{2+\sqrt[3]{x}}-2)}{x-8}$$ $$\xrightarrow{HoP}\lim_{x\to 8}8\frac{\frac{1}{3\sqrt[3]{x^2}}}{2\sqrt{2+\sqrt[3]{x}}}=8\times\frac{1}{48}=\boxed{\frac{1}{6}}$$ ۲	۱۰