نام و نام خانوادگی ...محمد جابری... پاسخنامه تشریحی تکلیف شماره ..19.. کلاس ..دوازدهم ریاضی A..

۱۱٫۵

$$f(x)\begin{cases} -2^+ \Rightarrow 2\left[\cancel{\dfrac{4^-}{2}}\right]_{1} + a\left[\cancel{\dfrac{-2^+ +2}{3}}^{\,0^+}\right] = 2 \\ -2^- \Rightarrow 2\left[\cancel{\dfrac{2-(-2^-)}{2}}^{\,4^+}\right] + a\left[\cancel{\dfrac{-2^- +2}{3}}^{\,0^-}\right] = 4-a \end{cases}$$

$\Rightarrow 4 - a = 2 \Rightarrow a = 2$

$\left[\dfrac{a}{3}\right] = \left[\dfrac{2}{3}\right] = 0$ ✓

۲ — 1

$\lim\limits_{x\to(\frac{\pi}{6})^-} [2\sin x - 1] \xrightarrow{\sin\frac{\pi}{6} = \frac{1}{2}^-} [1^- - 1] = [0^-] = -1$ ✓

۲ — 2

$\lim\limits_{x\to -\frac{1}{2}} [8x^3 - x] \longrightarrow$ ~~...~~

چون داخل براکت عدد صحیح نمی‌شود نیازی به دو طرفه‌ای کردن ندارد

$= \left[-1 - \left(-\frac{1}{2}\right)\right] = \left[-\frac{1}{2}\right] = -1$ ✓

۲ — 3

$x \to \left(-\frac{1}{2}\right)^- \Rightarrow x < -\frac{1}{2} \Rightarrow x^2 > \frac{1}{4} \Rightarrow \frac{1}{x^2} > 4 \Rightarrow \frac{3}{x^2} > 12$

$\Rightarrow \frac{-2}{x^2} < -8$

$\Rightarrow \left[\frac{3}{x^2}\right] = 12 \ \wedge\ \left[\frac{-2}{x^2}\right] = -9$

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$\dfrac{10(-\frac{1}{2}) - 5 + 12}{16(-\frac{1}{2}) - (-9)} = \dfrac{2}{1}$

$\lim\limits_{x\to(-\frac{1}{2})^-} = \dfrac{10x - 5 + 11}{16x - (-8)} = \lim\limits_{x\to(-\frac{1}{2})^-} \dfrac{10x+6}{16x+8} = \dfrac{-5+6}{(-8)^- + 8} = \dfrac{1}{0^-} = -\infty$

— 4

$\lim\limits_{x\to 1^+} \dfrac{\sin^2 \pi x}{\underbrace{[x]}_{1} + \cos \pi x} \Rightarrow \lim\limits_{x\to 1^+} \dfrac{\overset{(1-\cos\pi x)(1+\cos\pi x)}{1 - \cos^2 \pi x}}{1 + \cos \pi x} = 1 - \cos \pi x =$

$1 - \cos\pi = 1 - (-1) = 2$ ✓

$[1^+] = 1$

۲ — 5

$$\lim_{x\to -1} \frac{\sqrt{2x+3}-\sqrt{3x+4}}{1+\sqrt[3]{x}} \overset{hop}{\Longrightarrow} = \frac{\frac{2}{2\sqrt{2x+3}}-\frac{3}{2\sqrt{3x+4}}}{\frac{1}{3\sqrt[3]{x^2}}}$$

$$= \frac{1-\frac{3}{2}}{\frac{1}{3}} = \frac{-\frac{1}{2}}{\frac{1}{3}} = -\frac{3}{2} = -1.5$$ ۶

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$$\lim_{x\to 1} \frac{2x-7\sqrt{x}+5}{2x-3\sqrt{x}+1} = \frac{\cancel{(\sqrt{x}-1)}(\sqrt{x}-\frac{5}{2})}{\cancel{(\sqrt{x}-1)}(\sqrt{x}-\frac{1}{2})} = \frac{-\frac{3}{2}}{\frac{1}{2}} = -3$$ ۷

۰/۵

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

$$\frac{b}{\sqrt{bx+c}} = \frac{1}{4} \Rightarrow b = \frac{1}{4}\sqrt{c} \qquad \frac{ab}{c} = \frac{\sqrt{c}\times\frac{1}{4}\sqrt{c}}{c} = \frac{1}{4}$$ ۸

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$$\lim_{x\to(-2\pi)^-} = \frac{4+K[\frac{x}{\pi}]}{\sin x} = \frac{4-3K}{0^-} = +\infty \to 4-3K<0 \to K>\frac{4}{3} \quad (I)$$

$$\lim_{x\to(-2\pi)^+} = \frac{4+K[\frac{x}{\pi}]}{\sin x} = \frac{4-2K}{0^+} = +\infty \to 4-2K>0 \to K<2 \quad (II)$$ ۹

$$\xrightarrow{(I)\cap(II)} \frac{4}{3}<K<2 \to -2<-K<-\frac{4}{3} \to [-K] = -2$$

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$$8a-b=0 \to b=8a$$

$$\lim_{x\to 8} \frac{8a(\sqrt{2+\sqrt[3]{x}}-2)}{ax-8a} = \frac{8a(\sqrt{2+\sqrt[3]{x}}-2)}{ax-8a} \times \frac{\sqrt{2+\sqrt[3]{x}}+2}{\sqrt{2+\sqrt[3]{x}}+2} =$$ ۱۰

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

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سوال ۷

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

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

$$(x-1)\longrightarrow(\cancel{\sqrt{x}-1})(\sqrt{x}+1)$$

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

سوال ۸

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

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

$$\frac{b}{2\sqrt{c}}=\frac{1}{4}\longrightarrow b=\frac{\sqrt{c}}{2}\longrightarrow\frac{ab}{c}=\frac{(-\sqrt{c})(\frac{\sqrt{c}}{2})}{c}=\frac{-c}{2c}=\boxed{-\frac{1}{2}}$$