نام و نام خانوادگی ...... ستایش محمدزاده ...... پاسخنامه تشریحی تکلیف شماره 14 ... کلاس ... دوازدهم تجربی A ......

$f(x) = 2\left[\frac{2-x}{2}\right] + a\left[\frac{x+2}{3}\right] \longrightarrow \lim_{x\to -2} 2 + 2\left[\frac{-x}{2}\right] + a\left[\frac{x+2}{3}\right]$ $\left[1 - \frac{x}{2}\right] = 1 + \left[-\frac{x}{2}\right]$ $-2^+ \longrightarrow 2 + 2\left[\frac{-(-2^+)}{2}\right] + a\left[\frac{-2^+ + 2}{3}\right] = 2 + 2[1^-] + a[0^+] = 2 + 0 + 0 = 2$ $-2^- \longrightarrow 2 + 2(1) - a = 4 - a \quad 4 - a = 2 \longrightarrow a = 2 \longrightarrow \left[\frac{a}{3}\right] = \left[\frac{2}{3}\right] = 0$	1
$\lim_{x\to (\frac{\pi}{6})^-} [2\sin x - 1]$ $\sin\left(\frac{\pi^-}{6}\right) = \frac{1}{2}^- \longrightarrow [2\sin x - 1] = [1^- - 1] = [0^-] = -1$	2
$\lim_{x\to -\frac{1}{2}} [8x^3 - x] = 8x^3 - x = 8\left(-\frac{1}{2}\right)^3 - \left(-\frac{1}{2}\right) = 8\left(-\frac{1}{8}\right) + \frac{1}{2} = -1 + \frac{1}{2} = -\frac{1}{2}$ $\longrightarrow \left[-\frac{1}{2}\right] = -1$	3
$\lim_{x\to -\frac{1}{2}} \frac{6x - 5 + \left[\frac{3}{x^2}\right]}{16x - \left[-\frac{2}{x^2}\right]}$ $x < -\frac{1}{2} \longrightarrow x^2 > \frac{1}{4} \longrightarrow \frac{3}{x^2} < 12 \longrightarrow \left[\frac{3}{x^2}\right] = 11$ $\frac{-2}{x^2} > -8 \longrightarrow \left[\frac{-2}{x^2}\right] = -8$ $\lim \frac{6x - 5 + 11}{16x + 8} = \frac{6x + 6}{16x + 8}$ $x = -\frac{1}{2} \longrightarrow \frac{6(-\frac{1}{2}) + 6}{16(-\frac{1}{2}) + 8} = \frac{1}{0^-} = -\infty$	4
$\lim_{x\to 1^+} \frac{\sin^2 \pi x}{[x] + \cos \pi x} \longrightarrow \lim \frac{\sin^2 \pi x}{\cos \pi x + 1} = \frac{0}{0} \xrightarrow{\text{رفع ابهام}} \frac{1 - \cos^2 \pi x}{\cos \pi x + 1} = \frac{(1 - \cos \pi x)(1 + \cos \pi x)}{1 + }$ $[1^+] = 1$ $\lim_{x\to 1^+} 1 - \cos \pi x = 2$	5

$$\lim_{x\to -1}\frac{\sqrt{2x+3}-\sqrt{3x+4}}{1+\sqrt[3]{x}}=\frac{1-1}{1+(-1)}=\frac{0}{0}\ \text{رفع ابهام}$$

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

$$\lim\frac{2x-7\sqrt{x}+5}{2x-\sqrt{3x+1}}=\frac{2-7+5}{2-2}=\frac{0}{0}\ \text{رفع ابهام}\ \frac{2x-7\sqrt{x}+5}{2x-\sqrt{3x+1}}\times\frac{2x+\sqrt{3x+1}}{2x+\sqrt{3x+1}}=$$

$$\frac{4(2x-7\sqrt{x}+5)}{4x^2-3x-1}=\frac{2(\sqrt{x}-1)(\sqrt{x}-\frac{5}{2})\times 4}{4(x-1)(x+\frac{1}{4})}\xrightarrow{x=1}\frac{2(1-\frac{5}{2})\times 4}{4(2)(1+\frac{1}{4})}=-\frac{6}{5}$$ 7

$$-\frac{6}{5}$$

$$\lim\frac{a+\sqrt{bx+c}}{x}=\frac{1}{4}\to\lim\frac{a+\sqrt{c}}{0}=\frac{1}{4}\xrightarrow{\frac{0}{0}}a+\sqrt{c}=0\to\sqrt{c}=-a\to c=a^2$$

$$\text{hop}\quad\frac{\frac{b}{2\sqrt{bx+c}}}{1}=\frac{1}{4}\xrightarrow{x=0}\frac{b}{2\sqrt{c}}=\frac{1}{4}\to\sqrt{c}=2b,\ \sqrt{c}=-a\ \Big\}\ 2b=-a,\ b=-\frac{a}{2}$$ 8

$$\frac{ab}{c}=\frac{a(-\frac{a}{2})}{a^2}=-\frac{1}{2}$$

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

$$[-k]=-2\leftarrow -\frac{4}{3}>-k>-2\leftarrow\frac{4}{3}<k<2$$ 9

$$x\to(-2\pi)^-\to\frac{4+k\left[\frac{(-2\pi)^-}{\pi}\right]}{\sin(-2\pi)^-}=\frac{4-3k}{0^-}=+\infty\to 4-3k<0\to 4<3k\to k>\frac{4}{3}$$

$$\lim\frac{b\sqrt{2+\sqrt[3]{x}}-2b}{ax-b}\qquad\frac{\frac{1}{3}b^2x^{-\frac{2}{3}}}{4ab}=\frac{x^{-\frac{2}{3}}}{6}=\frac{8^{-\frac{2}{3}}}{6}=\frac{1}{24}$$

$2b-2b=0$

$x=8$

$\Downarrow$

مخرج $ax-b=0$

$\boxed{8a=b}$

$$\frac{b\sqrt{2+\sqrt[3]{x}}-2b}{ax-b}\times\frac{b\sqrt{2+\sqrt[3]{x}}+2b}{b\sqrt{2+\sqrt[3]{x}}+2b}=\frac{2b^2+b^2x^{\frac{1}{3}}-4b^2}{4abx-4b^2}\xrightarrow{\text{hop}}$$ 10