نام و نام خانوادگی ....عرفان عبدالهی.... 14 پاسخنامه تشریحی تکلیف شماره ...19... کلاس ....دوازدهم سری A

**۱**

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

$\lim_{x\to 2^+} f(x) = 2[2^-] + a[0^+] = 2 \rightarrow 2 = 4-a$

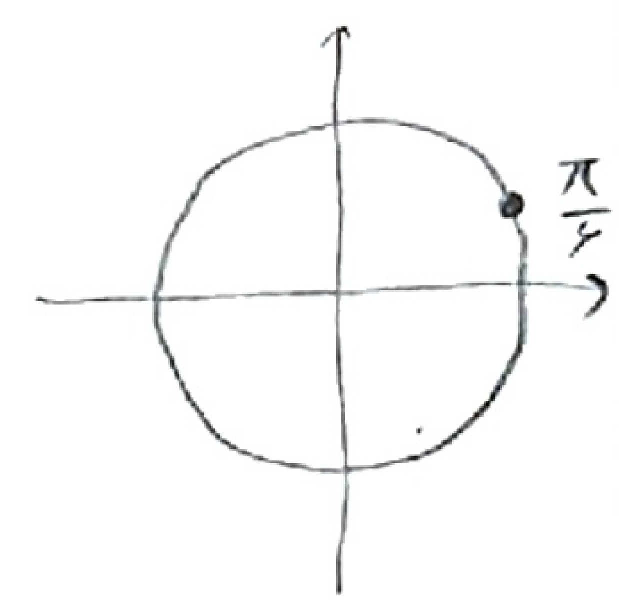
$\lim_{x\to 2^-} f(x) = 2[2^+] + a[0^-] = 4-a \qquad a = 2$

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

2

**۲**

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




2

**۳**

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

$f'(x) = 24x^2 - 1$

$f'(-\frac{1}{2}) > 0$

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

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

2

**۴**

$\lim_{x\to(-\frac{1}{2})^-} \frac{10x - 8 + \left[\frac{3}{x^2}\right]}{16x - \left[-\frac{2}{x^2}\right]} = \frac{10x-8+[12^-]}{16x-[-8^+]} = \frac{10x-8+11}{16x+8} = \frac{+1}{0^-} = -\infty$

$x < -\frac{1}{2}$, $x^2 > \frac{1}{4} \longrightarrow \frac{1}{x^2} < 4$ ; $\frac{3}{x^2} < 12$ ; $-\frac{2}{x^2} > -8$

2

**۵**

$\lim_{x\to 1^+} \frac{\sin^2 \pi x}{[x] + \cos \pi x} = \frac{\sin^2 \pi x}{1 + \cos \pi x} = \frac{0}{0} \xrightarrow{HOP} \frac{2 \times \sin \pi x \times \pi \times \cos \pi x}{-\sin \pi x \times \pi}$

$= -2\cos \pi x = -2 \times -1 = 2$

2

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$$\lim_{x\to -1} \frac{\sqrt{2x+3}-\sqrt{3x+4}}{1+\sqrt[3]{x}} = \frac{0}{0} \xrightarrow{Hop} = \frac{\frac{2}{2\times 1}-\frac{3}{2\times 1}}{\frac{1}{3\times 1}}$$

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

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$$\lim \frac{2x-7\sqrt{x}+5}{2x-\sqrt{3x+1}} = \frac{0}{0} \xrightarrow{Hop} \frac{2-7\times\frac{1}{2\times 1}}{2-\frac{3}{2\times 2}}$$

$$\frac{-\frac{3}{2}}{\frac{5}{4}} = -\frac{6}{5}$$

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

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

$$a=-2b,\quad C=a^2 \longrightarrow \frac{ab}{c} = \frac{a\times -\frac{a}{2}}{a^2} = -\frac{1}{2}$$

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$$\lim_{x\to -2\pi} \frac{4+k\left[\frac{x}{\pi}\right]}{\sin x} = +\infty$$

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$$x \to -2\pi^+ = \frac{4+k[-2^+]}{0^+} = +\infty \qquad x \to -2\pi^- = \frac{4+k[-2^-]}{0^-} = +\infty$$

$$4+k(-2)>0 \to 4>2k \to 2>k$$

$$4+k(-3)<0 \to 4<3k \to \frac{4}{3}<k \longrightarrow \frac{4}{3}<k<2 \to [k]=1$$

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

۱۰

$$\lim_{x\to 8} \frac{b\sqrt{2+\sqrt[3]{x}}-2b}{ax-b} = \frac{2b-2b}{8a-b} = \frac{0}{0} \xrightarrow{Hop} \frac{b\times\frac{\frac{1}{3\times 4}}{2\times 2}}{a=\frac{1}{8}b} = \frac{1}{12\times 4}\times 8$$

$$8a-b=0 \longrightarrow a=\frac{1}{8}b$$

$$= \frac{1}{6}$$

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