نام و نام خانوادگی طاها حق جویی ...... پاسخنامه تشریحی تکلیف شماره ...... کلاس دوازدهم ر - A ......

۱

$\lim_{x\to(-۲)^+} f(x) = \lim_{x\to(-۲)^+} ۲[۲^-] + a[۰^+] = ۲\times۱+۰ = ۲$

$\xrightarrow{\text{حد دارد}} ۲ = ۴ - a \to a = ۲$

$\lim_{x\to(-۲)^-} f(x) = \lim ۲[۲^+] + a[۰^-] = ۴ - a$

$\to \left[\frac{۲}{۳}\right] = ۰$

۲

$\lim_{x\to(\frac{\pi}{۶})^-} \left[-(\sin\frac{x}{۲} - \cos\frac{x}{۲})^۲\right] = \lim_{x\to(\frac{\pi}{۶})^-}\left[-(\sin\frac{\pi}{۱۲} - \cos\frac{\pi}{۱۲})^۲\right]$

$\sin\frac{\pi}{۱۲} = \sin(\frac{\pi}{۴}-\frac{\pi}{۶}) = \frac{\sqrt{۲}-\sqrt{۶}}{۴}$, $\cos\frac{\pi}{۱۲} = \frac{\sqrt{۲}+\sqrt{۶}}{۴} \Rightarrow \lim\left[-(-\frac{\sqrt{۶}}{۲})^۲\right]$

$= \left[-\frac{۳}{۲}\right] = -۲$

۳

$\left[۸(-\frac{۱}{۸}) + \frac{۱}{۲}\right] = \left[-\frac{۱}{۲}\right] = -۱$

۴

$\lim_{x\to(-\frac{۱}{۲})^-} \frac{۱۰x-۵+[(۱۲)^-]}{۱۶x-[(-۸)^+]} = \lim_{x\to(-\frac{۱}{۲})^-} \frac{۱۰x-۵+۱۱}{۱۶x+۸} = \lim_{x\to(-\frac{۱}{۲})^-} \frac{۲(۵x+۳)}{\cancel{۸}_{۴}(۲x+۱)} = \frac{\frac{۱}{۲}}{۰^-} = -\infty$

۵

$\lim_{x\to۱^+}\frac{\sin^۲\pi x}{۱+\cos\pi x} = \lim_{x\to۱^+} \frac{۱-\cos^۲\pi x}{۱+\cos\pi x} = \lim_{x\to۱^+} ۱-\cos\pi x = ۲$

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

$$\lim_{x\to -1} \frac{2x+3-3x-4}{1+x} \times \frac{3}{2} = \frac{3}{2} \times \frac{-\cancel{(x+1)}}{\cancel{x+1}} = -\frac{3}{2}$$ 6

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

$$\lim_{x\to 1} \frac{(1-\sqrt{x})(5-2\sqrt{x})}{2-\sqrt{3x+1}} \times \frac{2+\sqrt{3x+1}}{2+\sqrt{3x+1}} = \lim_{x\to 1} \frac{4(1-\sqrt{x})(5-2\sqrt{x})}{4-3x-1}$$ 7

$$\lim_{x\to 1} \frac{4(1-\sqrt{x})(5-2\sqrt{x})}{3(1-x)} = \lim_{x\to 1} \frac{4(5-2x)}{(1+\sqrt{x})} = \frac{12}{2} = 6$$

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

$$\Rightarrow \lim_{x\to 0} \frac{\sqrt{bx+c}-\sqrt{c}}{x} \times \frac{\sqrt{bx+c}+\sqrt{c}}{\sqrt{bx+c}+\sqrt{c}} = \frac{b\cancel{x}+\cancel{c}-\cancel{c}}{\cancel{x}(\sqrt{bx+c}+\sqrt{c})} = \lim_{x\to 0} \frac{b}{\sqrt{bx+c}+\sqrt{c}}$$ 8

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

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

$$\lim_{x\to(-2\pi)^-} \frac{4+k[(-2)^-]}{\sin x} = \frac{4-3k}{0^-} = +\infty \to 4k-3 \quad 0 \to k>\frac{4}{3}$$ 9

$$\Rightarrow \frac{4}{3}<k<2 \longrightarrow [-k]=-2$$

$$\lim_{x\to 8} \frac{b(\sqrt{2+\sqrt[3]{x}}-2)}{ax-b} \times \frac{\sqrt{2+\sqrt[3]{x}}+2}{\sqrt{2+\sqrt[3]{x}}+2} = \lim_{x\to 8} \frac{b(2+\sqrt[3]{x}-4)}{(ax-b)\times 4} = \lim_{x\to 8} \frac{b(\sqrt[3]{x}-2)}{4(ax-b)}$$

$$\times \frac{(\sqrt[3]{x^2}+2\sqrt[3]{x}+4)}{(\sqrt[3]{x^2}+2\sqrt[3]{x}+4)} = \lim_{x\to 8} \frac{b(x-8)}{4(ax-b)\times(4+4+4)} = \lim_{x\to 8} \frac{b\cancel{(x-8)}}{48\cancel{(ax-b)}} \Rightarrow \begin{cases} b=8 \\ a=1 \end{cases}$$ 10

$$= \frac{8}{48} = \frac{1}{6}$$