۱ــ

$x \to 2^+$ ، $2\left[\frac{3-x}{2}\right] + a\left[\frac{x+2}{3}\right] = 2$ ، $\underset{1}{}\quad \underset{0}{}$

$x \to 2^-$: $2\left[\frac{3-x}{2}\right] + a\left[\frac{x+2}{3}\right] = 4-a$ ، $\underset{2}{}\quad \underset{-1}{}$

$\Rightarrow 4-a = 2 \Rightarrow a = 2 \rightarrow \boxed{\left[\frac{2}{3}\right] = 0}$

۲ــ

$$\lim_{x \to \frac{\pi}{4}^-} [2\sin x - 1] = [0^-] = \boxed{-1}$$

۳ــ

$$\lim_{x \to -\frac{1}{2}} [8x^3 - x] = \left[-1-\left(-\frac{1}{2}\right)\right] = \left[-\frac{1}{2}\right] = \boxed{-1}$$

۴ــ

$$\lim_{x \to -8} \frac{10x^{-10} - a + \left[\frac{3}{x^2}\right]}{14x - \left[-\frac{2}{x^2}\right]} = \frac{-10+11}{-8-(-8)} = \frac{1}{0^-} = \boxed{-\infty}$$

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

$\Downarrow$

$\frac{3}{x^2} < 12$

۵ــ

$$\lim_{x \to 1^+} \frac{\sin^2 \pi x}{[x] + \cos \pi x} = \lim_{x \to 1^+} \frac{1-\cos^2 \pi x}{1+\cos \pi x} = \lim_{x \to 1^+} 1 - \cos \pi x = \boxed{2}$$

۶ــ

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

$$= \frac{2x+3-(3x+4)}{1+x} = \frac{-x-1}{1+x} \times \frac{3}{2} = \boxed{\frac{3}{2}}$$

۷ــ

$$\lim_{x \to 1} \frac{2x - 7\sqrt{x} + a}{2x - \sqrt{3x+1}} \xrightarrow{\text{HOP}} \frac{2 - 7\frac{1}{2\sqrt{x}}}{2 - \frac{3}{2\sqrt{3x+1}}} = \frac{2-\frac{7}{2}}{2-\frac{3}{4}} = \frac{-\frac{3}{2}}{\frac{5}{4}} = \boxed{-\frac{6}{5}}$$

۸ـ $\lim_{x\to 0} \frac{a+\sqrt{bx+c}}{x} = \frac{1}{4} \xrightarrow{hop} \frac{\frac{b}{2\sqrt{bx+c}}}{1} \xrightarrow{x=0} = \frac{\frac{b}{2\sqrt{c}}}{1} = \frac{b}{2\sqrt{c}} = \frac{1}{4}$

$a+\sqrt{c}=0 \Rightarrow a=-\sqrt{c}=-2b \qquad \frac{ab}{c} = \frac{-2b\times b}{4b^2} = \boxed{-\frac{1}{2}} \qquad \Rightarrow 2b=\sqrt{c},\ c=4b^2$

۹ـ $\lim_{x\to -2\pi} \frac{4+k[\frac{x}{\pi})}{\sin x} = +\infty \xrightarrow{x\to -2\pi^+} \frac{4-2k}{0^+} = +\infty \Rightarrow 4-2k>0 \Rightarrow k<2$

$x\to -2\pi^- \Rightarrow \frac{4-3k}{0^-} = +\infty \Rightarrow 4-3k<0 \Rightarrow k>\frac{4}{3}$

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

۱۰ـ $\lim \frac{b\sqrt{4+3\sqrt[3]{x}}-2b}{ax-b} \xrightarrow{hop} \frac{\frac{\frac{b}{\sqrt[3]{x^2}}}{2\sqrt{4+3\sqrt[3]{x}}}}{a} \xrightarrow{x=8} \frac{b}{48a} \quad \boxed{-\frac{1}{6}}$

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