

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

$$\lim_{x \rightarrow 2^-} f(x) = 2 \times 2 + a \times 2 - 1 = 4 - a$$

$$\lim_{x \rightarrow 2^+} f(x) = 2 \times 1 + a \times 0 = 2$$

در $m = 2$ فردار (یعنی)
 $\lim_{x \rightarrow 2^-} f(x) = \lim_{x \rightarrow 2^+} f(x)$

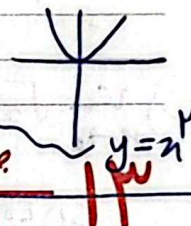
$$4 - a = 2 \Rightarrow a = 2 \Rightarrow \left[\frac{a}{x} \right] = \left[\frac{2}{x} \right] = 2$$

$$\lim_{x \rightarrow \left(\frac{\pi}{2}\right)^-} [2 \sin x - 1] = \left[2 \times \frac{1}{2} - 1 \right] = [1 - 1] = [0] = 0$$

$$\lim_{x \rightarrow -\frac{1}{2}} [12x^3 - 2] = \left[12 \times \frac{1}{8} - 2 \right] = \left[\frac{3}{2} - 2 \right] = \left[-\frac{1}{2} \right] = -\frac{1}{2}$$

$$\lim_{x \rightarrow \left(\frac{1}{2}\right)^-} \frac{10x - a + \left[\frac{x}{2x}\right]}{19x - \left[-\frac{x}{2x}\right]} = \frac{(10 \times \frac{1}{2}) - a + \left[\frac{1}{4}\right]}{(19 \times \frac{1}{2}) - \left[-\frac{1}{4}\right]} = \frac{5 - a + \frac{1}{4}}{\frac{19}{2} + \frac{1}{4}} = \frac{20 - 4a + 1}{19 + 1} = \frac{21 - 4a}{20}$$

در بخش‌های منفی صعودی ✓
 در بخش‌های منفی نزولی است. ✓



$$\lim_{n \rightarrow 1^+} \frac{\sin^2 \pi n}{[n] + \cos \pi n} = \frac{0}{0} \Rightarrow \frac{(1 - \cos \pi n)(1 + \cos \pi n)}{(1 + \cos \pi n)(1 - \cos \pi n)} = 1$$

$$\lim_{x \rightarrow 1} \frac{\sqrt{2x+3} - \sqrt{3x+2}}{1 + \sqrt{x}} = \frac{0}{0} \xrightarrow{\text{Höp}} \frac{2}{2\sqrt{3x+2}} - \frac{3}{2\sqrt{3x+2}} = \frac{2}{2} - \frac{3}{2} = -\frac{1}{2}$$

$$\lim_{n \rightarrow 1} \frac{2n - \sqrt{2n} + a}{2n - \sqrt{2n+1}} = \frac{0}{0} \xrightarrow{\text{Höp}} \frac{2 - \frac{1}{\sqrt{2n}}}{2 - \frac{1}{\sqrt{2n+1}}} = \frac{2 - \frac{1}{\sqrt{2}}}{2 - \frac{1}{\sqrt{3}}} = \frac{2 - \frac{1}{\sqrt{2}}}{2 - \frac{1}{\sqrt{3}}}$$

$$\lim_{n \rightarrow 0} \frac{a + \sqrt{bx+c}}{x} = \frac{1}{k} \Rightarrow a + \sqrt{c} = 0 \Rightarrow a = -\sqrt{c} \Rightarrow \frac{a}{c} = \frac{-\sqrt{c} \times \sqrt{c}}{c} = -\frac{1}{\sqrt{c}}$$

$$\frac{0}{0} \xrightarrow{\text{Höp}} \frac{b}{\sqrt{bx+c}} = \frac{1}{k} \Rightarrow \frac{b}{\sqrt{bx+c}} = \frac{1}{k} \xrightarrow{n=0} \frac{b}{\sqrt{c}} = \frac{1}{k} \Rightarrow \sqrt{c} = kb \Rightarrow b = \frac{\sqrt{c}}{k}$$

$$\lim_{n \rightarrow 1} \frac{b\sqrt{2+5n} - 2b}{9n - b} = \frac{0}{0} \Rightarrow 19a = b$$

$$\lim_{n \rightarrow 2} \frac{x + k \left[\frac{x}{x} \right]}{\sin x} = +\infty \Rightarrow \frac{x + k(x-2)}{x + k(x-2)} = \frac{k - 2k}{k - 2k} = \frac{-k}{-k} = 1$$