

$$n \rightarrow \infty \quad r \left[\frac{r^n}{r} \right] + a \left[\frac{n-r}{r} \right] = r$$

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$$\rightarrow r = r \rightarrow a = r \rightarrow \left[\frac{r}{r} \right] = 0$$

(Y)

$$\lim_{n \rightarrow \infty} [r \sin n - 1] = [0] = -1$$

(Y)

$$\lim_{n \rightarrow -1} [n^n - n] = [-1 - (-1)] = [-1] = -1$$

(Y)

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$$= \frac{-1 + 1}{-1 - (-1)} = \frac{0}{0} = -1$$

(Y)

$$n \rightarrow \frac{1}{r} \rightarrow n^r > \frac{1}{r} \rightarrow \frac{1}{n^r} < r \rightarrow \frac{r}{n^r} > -1$$

$$\frac{r}{n^r} < 1$$

$$\lim_{n \rightarrow \infty} \frac{\sin^2 n}{[n] + \cos n} = \lim_{n \rightarrow \infty} \frac{1 - \cos^2 n}{1 + \cos n} = \lim_{n \rightarrow \infty} \frac{1 - \cos^2 n}{1 + \cos n} = 0$$

(Y)

$$\lim_{n \rightarrow -1} \frac{\sqrt{n+3} - \sqrt{n+1}}{1 + \sqrt{n}} \times \frac{1 + \sqrt{n}}{1 + \sqrt{n}} = \frac{1 + \sqrt{n}}{1 + \sqrt{n}} \times \frac{\sqrt{n+3} + \sqrt{n+1}}{\sqrt{n+3} + \sqrt{n+1}}$$

$$= \frac{n+3 - (n+1)}{1+n} = \frac{2}{1+n} \times \frac{1}{1} = \frac{2}{1+n}$$

(Y)

$$\lim_{n \rightarrow 1} \frac{n - \sqrt{n+1}}{n - \sqrt{n+1}} \times \frac{1}{1} = \frac{1 - \sqrt{2}}{1 - \sqrt{2}} = \frac{1 - \sqrt{2}}{1 - \sqrt{2}} = 1$$

(Y)

$$\lim_{n \rightarrow 0} \frac{a + \sqrt{b}n + c}{n} = \frac{1}{r} \xrightarrow{\text{L'Hop}} \frac{b}{r\sqrt{b}n + c} \xrightarrow{n=0} = \frac{b}{r\sqrt{c}} = \frac{b}{r\sqrt{c}} = \frac{1}{r}$$

$$a + \sqrt{c} = 0 \Rightarrow a = -\sqrt{c} = -rb$$

$$\frac{ab}{c} = \frac{-rb \times b}{rb^2} = -\frac{1}{r}$$

$$\boxed{-\frac{1}{r}}$$

①

$$\Rightarrow rb = \sqrt{c} \\ c = rb^2$$

$$\lim_{n \rightarrow -rk} \frac{f + r \left(\frac{n}{r} \right)}{\sin n} = +\infty \xrightarrow{n \rightarrow -rk^+} \frac{f - rk}{0^+} = +\infty \Rightarrow f - rk > 0$$

$$n \rightarrow -rk^-$$

$$\frac{f - rk}{0^-} = +\infty \Rightarrow f - rk < 0 \Rightarrow rk > \frac{f}{r}$$

$$\frac{f}{r} < rk < r \Rightarrow [-rk] = \boxed{-r}$$

✓

②

$$\lim_{n \rightarrow b} \frac{b\sqrt{r}n - rb}{an - b} \xrightarrow{\text{L'Hop}} \frac{b}{a}$$

$$\frac{b}{a\sqrt{r}n} \xrightarrow{n=b} \frac{b}{a\sqrt{r}b} = \frac{1}{a\sqrt{r}}$$

$$\frac{b}{a\sqrt{r}} = \frac{1}{a\sqrt{r}}$$

✓

③

$$ra - b = 0 \Rightarrow ra = b$$