

(مقسوم)

مقسوم عليه

(1)

$$i. \rightarrow \frac{x^p - \sqrt{x+1}}{x^p - 1} \rightarrow \frac{(x^p - 1)(x^p - 1)}{(x^p - 1)(x^p - 1)} = \frac{x^p - 1}{x^p - 1} = 1$$

$\rightarrow x \rightarrow 1$

(2)

$$0^+ \rightarrow \frac{3x - 1 - 3x - 1}{x} = -\frac{2}{x} = -\infty$$

$$0^- \rightarrow \frac{1 - 3x - 3x - 1}{x} = -\frac{6x}{x} = -6$$

(3)

$$j. \rightarrow \frac{(\sqrt{x} - 1)(\sqrt{x} + 1)}{\sqrt{x} - 1} \rightarrow \begin{matrix} \sqrt{x+1} \rightarrow 1 \\ x \rightarrow 1 \end{matrix}$$

Lim  $\rightarrow 1$

(4)

$$k. \lim_{x \rightarrow 1} \frac{x - \sqrt{x}}{x^p - 1} \rightarrow \frac{x(x - 1)}{(x^p - 1)(x - 1)(x + 1) \dots} = \frac{x}{(x^p - 1)(x + 1) \dots} = \frac{1}{1^p}$$

(5)

$$l. \lim \frac{1 - \sqrt{x}}{1 - \sqrt{x-1}} \times \frac{1 + \sqrt{x-1}}{1 + \sqrt{x-1}} = \frac{(1 - \sqrt{x})(1 + \sqrt{x-1})}{(1 - (x-1))(1 + \sqrt{x-1})} = \frac{1 - \sqrt{x}}{2}$$

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

$$\lim_{x \rightarrow \infty} \frac{\sqrt{px+q} - r}{\sqrt{ax+b} - c} \times \frac{\sqrt{px+q} + r}{\sqrt{px+q} + r} \times \frac{\sqrt{(ax+b)^2 + 9} + \sqrt{ax+b}}{1}$$

$$= \frac{px+q-rc}{ax+b-c} \times \frac{c}{r} = \frac{1}{\frac{r}{c}}$$

$$\therefore \rightarrow \frac{\sqrt{px+q} - r}{\sqrt{ax+b} - c} \times \frac{\sqrt{px+q} + r}{\sqrt{px+q} + r} \times \frac{\sqrt{ax+b} + 1}{\sqrt{ax+b} + 1}$$

$$\rightarrow \frac{1}{\frac{r}{c}} \times \frac{1}{\frac{r}{c}} = \frac{1}{\frac{r}{c}}$$

$$\lim_{x \rightarrow \frac{\pi}{2}} \frac{(1 + \cos x)(1 + \cos^2 x - 6 \cos x)}{(1 - \cos x)(1 + \cos x)}$$

$$\lim_{x \rightarrow \frac{\pi}{2}} \frac{\cos x - \sin x}{\cos x} \rightarrow \frac{-1}{\cos \frac{\pi}{2}} = \frac{-1}{0} = -\infty$$

$$\lim_{x \rightarrow \frac{\pi}{2}} \frac{\tan^2 x - 1}{\cos^2 x} \rightarrow \frac{\sin^2 x - \cos^2 x}{\cos^2 x} = \frac{\sin^2 x - \cos^2 x}{\cos^2 x}$$

$$\frac{-1}{\cos^2 \frac{\pi}{2}} = \frac{-1}{0} = -\infty$$