

$$\lim_{n \rightarrow 1} \frac{f(n) - f(a)}{a(n) - 1(n) + f} = \frac{(n+1)(5n-3)}{(n-1)(5n-3)}$$

①

$$\frac{f - f}{a - a} = \frac{1}{1}$$

⑤

$$\lim_{n \rightarrow 0} \frac{|3n-1| - |3n+1|}{n}$$

②

⑤

$$\frac{|-3n-3n-1|}{n} = \frac{-6n-1}{n} = -6$$

③

$$\lim_{n \rightarrow 4} \frac{n-4}{\sqrt{n}-2} = \frac{(\sqrt{n}-2)(\sqrt{n}+2)}{\sqrt{n}-2} = 4$$

④

$$\lim_{n \rightarrow 8} \frac{n - \sqrt{2n}}{2n^2 - n - 9} \times \frac{n + \sqrt{2n}}{n + \sqrt{2n}} = \frac{n^2 - 2n}{(n-2)(2n+3)(n + \sqrt{2n})}$$

⑤

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

⑥

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

⑦

⑤

$$= \frac{1 - 1}{2 - \sqrt{a-1}} \times \frac{1 + \sqrt{a-1}}{1 + \sqrt{1}} = \frac{-1}{2} = -\frac{1}{2}$$

4

$$\lim_{x \rightarrow f} \frac{\sqrt{x^2 + f} - f}{x^2 + f - f} \quad \text{hop}$$

$$x \rightarrow f \quad \sqrt{x^2 + f} - f$$

6

$$\frac{\sqrt{x^2 + f}}{x^2 + f} = \frac{\sqrt{x^2 + f}}{x^2 + f} = \frac{1}{\sqrt{x^2 + f}}$$

$$\lim_{n \rightarrow 1} \frac{\sqrt{rn + \sqrt{n}} - r}{\sqrt{n} - 1}$$

Q

(V)

$$\begin{aligned} & r + \frac{1}{r\sqrt{n}} \\ & \frac{r\sqrt{rn + \sqrt{n}}}{r\sqrt{rn + \sqrt{n}}} = \frac{\sqrt{r}}{\sqrt{r}} \cdot \frac{\sqrt{rn + \sqrt{n}}}{\sqrt{rn + \sqrt{n}}} = \frac{\sqrt{r}}{\sqrt{r}} \cdot \frac{\sqrt{r}}{\sqrt{r}} \cdot \frac{\sqrt{rn + \sqrt{n}}}{\sqrt{rn + \sqrt{n}}} \\ & \frac{r\sqrt{rn + \sqrt{n}}}{r\sqrt{rn + \sqrt{n}}} = \frac{\sqrt{r}}{\sqrt{r}} \cdot \frac{\sqrt{r}}{\sqrt{r}} \cdot \frac{\sqrt{rn + \sqrt{n}}}{\sqrt{rn + \sqrt{n}}} = \frac{\sqrt{r}}{\sqrt{r}} \cdot \frac{\sqrt{r}}{\sqrt{r}} \cdot \frac{\sqrt{rn + \sqrt{n}}}{\sqrt{rn + \sqrt{n}}} \end{aligned}$$

①

$$\lim_{n \rightarrow \pi} \frac{1 + \cos^n n}{\sin^n n} = \frac{(1 + \cos n)(1 + \cos^n n)}{1 - \cos^n n} (1 + \cos^n n - \cos^n n)$$

$$(1 - \cos n)(1 + \cos n)$$

$$\frac{1 + \cos^n n - \cos^n n}{1 - \cos^n n} = \frac{1}{1}$$

$$\lim_{n \rightarrow \frac{\pi}{2}} \frac{1 - \tan n}{\sin n - \cos n} = - \left( \frac{1}{1} (1 + \tan^n n) \alpha 1 \right) \quad (9)$$

$$1 + \cos n \alpha 1 - (1 + \cos^n n) \alpha 1$$

$$\frac{1 - \sqrt{1-x}}{\sqrt{x}} = \frac{1 - \sqrt{1-x}}{\sqrt{x}}$$

$$\lim_{n \rightarrow \infty} \frac{\tan^n n - 1}{\cos^n n} = \frac{(\tan n - 1)(\tan n + 1)}{\cos^n n} \quad (1)$$

$$= \frac{(\cos n - \sin n)(\cos n + \sin n)}{\cos^n n}$$

$$= \frac{-(\sin n + \cos n)(\cos n - \sin n)}{\cos^n n} = \frac{-1}{\cos^n n} = -1$$