

$$\frac{x^2 - \sqrt{x} + 3}{x^2 - 1} \xrightarrow{\div x-1} \frac{(x-1)(x+3)}{(x-1)(x+1)} \quad \frac{x^2 - \sqrt{x} + 3}{x^2 - 1} \xrightarrow{\div x-1} \frac{(x-1)(x+3)}{(x-1)(x+1)}$$

(2)

$$\lim_{x \rightarrow 1} \frac{x^2 - \sqrt{x} + 3}{x^2 - 1} = \frac{(x-1)(x+3)}{(x-1)(x+1)} = \left(\frac{1}{1}\right) \checkmark$$

$$\lim_{x \rightarrow 0} \frac{|x-1| - |x+1|}{x} \rightarrow \frac{(1-x) - (x+1)}{x} = (-2) \checkmark$$

(2) (2)

$$x-1 = (\sqrt{x}-1)(\sqrt{x}+1) \quad \lim_{x \rightarrow 1} \frac{x-1}{\sqrt{x}-1} \rightarrow \frac{(\sqrt{x}-1)(\sqrt{x}+1)}{\sqrt{x}-1} = \frac{\sqrt{x}+1}{1} = (2) \checkmark$$

(2) (2)

$$\lim_{x \rightarrow 1} \frac{x - \sqrt{x}}{x^2 - x - 2} \times \frac{OP}{OP} = \frac{x^2 - \sqrt{x}}{x^2 - x - 2} \times \frac{1}{x + \sqrt{x}} \rightarrow \frac{x(x-1)}{(x-1)(x+2)} \times \frac{1}{x} = \left(\frac{1}{2}\right) \checkmark$$

(2) (2)

$$\lim_{x \rightarrow 1} \frac{1 - \sqrt{x}}{x - \sqrt{x} - 2} \times \frac{OP}{OP} \times \frac{PP}{PP} = \lim_{x \rightarrow 1} \frac{1-x}{x-1} \times \frac{1}{1} = (-1) \checkmark$$

(2) (2)

$$\lim_{x \rightarrow 1} \frac{\sqrt{x+1} - 1}{\sqrt{x+1} - 2} \times \frac{OP}{OP} \times \frac{PP}{PP} = \lim_{x \rightarrow 1} \frac{\sqrt{x+1} - 1}{x+1 - 4} \times \frac{1}{1} = \left(\frac{1}{2}\right) \checkmark$$

(1, 5) (2)

$$\text{HOP} \rightarrow \lim_{x \rightarrow 1} \frac{\frac{1}{\sqrt{x+1}}}{\frac{1}{x+1}} = \frac{1}{2} \div \frac{1}{2} = \frac{1}{1}$$

$$\lim_{u \rightarrow 1} \frac{\sqrt{u+1} - 1}{\sqrt{u} - 1} \times \frac{u^p}{u^p} \times \frac{u^q}{u^q} = \frac{u+1 - 1}{u-1} \times \frac{u}{u}$$

$$\frac{(\sqrt{u}-1)(\sqrt{u+1}+1)}{(\sqrt{u}-1)(\sqrt{u+1})} \times \frac{u}{u} = \frac{(\sqrt{u+1}+1)}{\sqrt{u+1}} \quad (2) \quad (1)$$

فيل وفيلون

$$\lim_{u \rightarrow \pi} \frac{1 + \cos u}{\sin u} = \frac{(1 + \cos u)(\cos u - \cos u + 1)}{(1 - \cos u)(1 + \cos u)} = \lim_{u \rightarrow \pi} \frac{\cos u - \cos u + 1}{1 - \cos u} = \frac{1}{1 - \cos \pi} = \frac{1}{1 - (-1)} = \frac{1}{2} \quad (2) \quad (1)$$

$$\lim_{u \rightarrow \frac{\pi}{2}} \frac{1 - \tan u}{\sin u - \cos u} = \frac{\cos u - \sin u}{\cos u - \sin u} = \frac{\cos u - \sin u}{\cos u} = \frac{-1}{\cos \frac{\pi}{2}} = \frac{-1}{0} = \frac{-1}{\frac{1}{\sqrt{2}}} = -\sqrt{2} \quad (2) \quad (1)$$

$$\lim_{u \rightarrow \frac{\pi}{4}} \frac{\tan u - 1}{\cos u} = \lim_{u \rightarrow \frac{\pi}{4}} \frac{\tan u - 1}{1 + \tan u} = \lim_{u \rightarrow \frac{\pi}{4}} \frac{-1 - \tan u}{1 + \tan u} = -1 \quad (2) \quad (1)$$

(2) (1)