

Exercice 1

Calculer

$$1^{\circ} \lim_{x \rightarrow 1} \frac{\sin(x-1)}{x^2-1} ; \lim_{x \rightarrow 0} \frac{x \sin x}{1-\cos x}$$

$$2^{\circ} \lim_{x \rightarrow \frac{\pi}{2}} \left(\frac{\pi}{2} - x \right) \tan x ; \lim_{x \rightarrow 0} \frac{\sqrt{x+1}-1}{\tan x}.$$

Exercice 2

Calculer :

$$1^{\circ} \lim_{x \rightarrow 0} \frac{1}{\sin^2 x} \left(\frac{2}{\cos x} + \cos x - 3 \right) ;$$

$$2^{\circ} \lim_{x \rightarrow \frac{\pi}{2}} \frac{1-\sin x}{\cos x} ; \lim_{x \rightarrow -\frac{\pi}{3}} \frac{\sin x + \sqrt{3} \cos x}{x + \frac{\pi}{3}}$$

Exercice 3

$$\text{Calculer } \lim_{x \rightarrow 0} \frac{1-\cos x \sqrt{\cos 2x}}{x^2} ; \lim_{x \rightarrow 0} \frac{\sin x - \tan x}{x^3 \cos x}$$

Exercice 4

Calculer :

$$1^{\circ} ; \lim_{x \rightarrow \frac{\pi}{4}} \frac{\sqrt{2} \cos x - 1}{\sqrt{2} \sin x - 1}$$

$$2^{\circ} \lim_{x \rightarrow 0} \frac{\sqrt{\tan(4x)} - \sqrt{\tan x}}{\sqrt{\tan(3x)} - \sqrt{\tan(2x)}} ; \lim_{x \rightarrow +\infty} \frac{x + \sqrt{3} \cos x}{x - \sqrt{2} \sin x}$$

Exercice 5

Calculer :

$$1^{\circ} \lim_{x \rightarrow 0} \frac{\sqrt{1+\sin x} - \sqrt{1-\sin x}}{x}$$

$$2^{\circ} \lim_{x \rightarrow 0} \frac{1 - \sqrt{\cos x}}{x^2}.$$

Exercice 6

Calculer :

$$1^{\circ} \lim_{x \rightarrow -1} \frac{1-x^2}{\sin(\pi x)} ;$$

$$2^{\circ} \lim_{x \rightarrow 1} \frac{\sin(\pi x)}{1-\sqrt{x}}$$