

Exercice1

Calculer la limite de la fonction f quand x tend vers x_0 , dans chacun des cas suivants :

1 $x_0 = 0 ; f(x) = \frac{\sin 2x}{3x}$

3 $x_0 = 0 ; f(x) = \frac{\tan 2x}{3x}$

5 $x_0 = 0 ; f(x) = \frac{\tan(4 \sin x)}{5 \sin x}$

7 $x_0 = 0 ; f(x) = \frac{\sin(x + 4 \tan x)}{5 \tan x}$

2 $x_0 = 0 ; f(x) = \frac{\sin 7x}{5x}$

4 $x_0 = 0 ; f(x) = \frac{\sin(2x^2)}{3x^2}$

6 $x_0 = 0 ; f(x) = \frac{\sin(x^2 + \pi)}{x^2 + \pi}$

8 $x_0 = 0 ; f(x) = \frac{\tan(x + 7 \sin x)}{3x^2 - 5 \tan x}$

Exercice2

Calculer la limite de la fonction f quand x tend vers x_0 , dans chacun des cas suivants :

1 $x_0 = 0 ; f(x) = \frac{\tan^2 x}{x}$

3 $x_0 = 0 ; f(x) = \frac{(1 - \cos x) \sin x}{\tan x^3}$

5 $x_0 = 0 ; f(x) = \frac{x^4 + \sin^2 x}{1 - \cos x}$

7 $x_0 = 0 ; f(x) = \frac{x + \sin^2 x}{1 - \cos x}$

9 $x_0 = 0 ; f(x) = \frac{x + \sin x}{x - \sin x}$

1 $x_0 = 0 ; f(x) = \frac{(1 - \cos x) \sin x}{\tan^2 x}$

3 $x_0 = 0 ; f(x) = \frac{\cos x}{\tan^2 x}$

5 $x_0 = 0 ; f(x) = \frac{\sqrt{x^2 + x + 3} - \sqrt{2x + 3}}{\tan 2x + \sin 3x}$

2 $x_0 = 0 ; f(x) = \frac{\sin x}{x^2}$

4 $x_0 = 0 ; f(x) = \frac{(1 - \cos^2 x) \sin^3 x}{\tan x^6}$

6 $x_0 = 0 ; f(x) = \frac{1 - \cos x}{\sin x^2}$

8 $x_0 = 0 ; f(x) = \frac{\tan x - \sin x}{x^2 - \sin x}$

0 $x_0 = 0 ; f(x) = \frac{2 \tan x - 3 \sin x}{x - 4 \sin x}$

2 $x_0 = 0 ; f(x) = \frac{\cos x - \sqrt{\cos 2x}}{\sin^2 x}$

4 $x_0 = 0 ; f(x) = \frac{\sqrt{2x+1} - \sqrt{x+1}}{\sin x}$

6 $x_0 = 0 ; f(x) = \frac{\sqrt{x^2 + 4x + 4} - 2\sqrt{2x^2 + 3x + 1}}{\tan 5x - \sin 7x}$

Exercice3

Calculer la limite de la fonction f quand x tend vers x_0 , dans chacun des cas suivants :

1 $x_0 = -\pi/2 ; f(x) = (1 + \sin x) \tan^2 x$

3 $(a \neq \pi/2 + k\pi) ; x_0 = a ; f(x) = \frac{\sin(x/2) - \sin(a/2)}{\sin x - \sin a}$

5 $x_0 = \pi/3 ; f(x) = \frac{\sin 3x}{1 - 2 \cos x}$

7 $x_0 = \pi/6 ; f(x) = \frac{2 \sin x - 1}{4 \cos^2 x - 3}$

9 $x_0 = \pi/4 ; f(x) = \frac{\sqrt{2} \sin x - 1}{\sqrt{2} \cos x - 1}$

1 $x_0 = \pi/3 ; f(x) = \frac{2 \cos^2 x + \cos x - 1}{1 - 2 \cos x}$

2 $x_0 = \pi/2 ; f(x) = \frac{\cos x}{x - \pi/2}$

4 $x_0 = \pi/2 ; f(x) = (1 + \cos 2x) \tan x$

6 $x_0 = \pi/3 ; f(x) = \frac{\sin\left(x - \frac{\pi}{3}\right)}{1 - 2 \cos x}$

8 $x_0 = \pi/2 ; f(x) = \frac{\sin^2 2x + \cos 2x + 1}{\cos 2x + \sin x}$

0 $x_0 = \pi ; f(x) = \frac{1 + \cos x}{(x - \pi)^2}$

2 $x_0 = 0 ; f(x) = \frac{\cos 2x - \cos x}{x \cdot \sin 2x}$