

1 ●次の関数を微分せよ。

(1)  $y = \sin x + 2x$

(2)  $y = \cos 3x$

(3)  $y = \sin^3 x$

(4)  $y = \tan^2 x$

(5)  $y = \frac{1}{\tan x}$

(6)  $y = x \sin 4x$

(7)  $y = \sin x \cos 2x$

(8)  $y = \frac{1}{1 + \cos x}$

2 ●次の関数を微分せよ。

(1)  $y = 2 \sin x$

(2)  $y = \sin 2x$

(3)  $y = \sin^2 x$

(4)  $y = \sin x^4$

(5)  $y = x + \sin x$

(6)  $y = x \sin x$

(7)  $y = \sin x + \cos x$

(8)  $y = \sin x \cos x$

3 例 次の関数を微分せよ。

(1)  $y = \sin 5x$

$y' = \cos 5x \cdot (5x)' = 5 \cos 5x$

(2)  $y = \cos^4 x$

$y' = 4 \cos^3 x \cdot (\cos x)' = 4 \cos^3 x \cdot (-\sin x)$   
 $= -4 \cos^3 x \sin x$

(3)  $y = x \tan x$

$y' = (x)' \tan x + x (\tan x)' = \tan x + \frac{x}{\cos^2 x}$

●次の関数を微分せよ。

(1)  $y = \sin(2x - 1)$

(2)  $y = \cos^5 x$

(3)  $y = \tan^2 5x$

(4)  $y = x^2 \sin x$

(5)  $y = \cos x - x \sin x$

●次の関数を微分せよ。

(1)  $y = \sqrt{3} \cos\left(2x - \frac{\pi}{6}\right)$

(2)  $y = \tan^5 x$

(3)  $y = \sin^3 2x$

(4)  $y = \frac{x}{\cos x}$

(5)  $y = \tan x - x$

4 例 次の関数を微分せよ。

(1)  $y = \sin^3 x \cos 3x$

$y' = (\sin^3 x)' \cos 3x + \sin^3 x (\cos 3x)' = 3 \sin^2 x \cos x \cos 3x + \sin^3 x (-\sin 3x) \cdot 3$   
 $= 3 \sin^2 x (\cos x \cos 3x - \sin x \sin 3x) = 3 \sin^2 x \cos 4x$

●次の関数を微分せよ。

(1)  $y = \sin^5 x \cos 5x$

(2)  $y = \frac{\sin x}{1 - \cos x}$

(3)  $y = \sqrt{1 - \sin x}$