

Differentiating trigonometric functions is a key part of GPS navigation.

The two forms of notation for the derivative are given on the formula sheet.

The derivative of $A \sin a x$ is $a \cos a x$ and the derivative of $a \cos a x$ is $-a \sin a x$.

Differentiate $f(x) = 2 \cos x + \frac{2}{3} \sin x$.

If $f(x) = 2 \cos x$ is differentiated, it becomes $-2 \sin x$. So $2 \cos x$ becomes $-2 \sin x$.

If $f(x) = \frac{2}{3} \sin x$ is differentiated, it becomes $\frac{2}{3} \cos x$.

So, $\frac{2}{3} \sin x$ becomes $\frac{2}{3} \cos x$.

Fully differentiated, $f'(x)$ becomes $-2 \sin x + \frac{2}{3} \cos x$.

Use the formula sheet to help you and differentiate each part of the expression separately.