

$$\begin{aligned}\sin(x+h) \\ &= \sin x \cdot \cos h + \cos x \cdot \sin h\end{aligned}$$

$$\begin{aligned}\cos(x+h) \\ &= \cos x \cdot \cos h - \sin x \cdot \sin h\end{aligned}$$

文字が変わっても  
三角関数の加法定理が使えますか。

$$\sin(x+h) =$$

$$\cos(x+h) =$$

## ラジアンを含んだ加法定理

の計算練習をしましょう。

$$\sin\left(x + \frac{\pi}{2}\right)$$

$$= \sin x \cdot \cos \frac{\pi}{2} + \cos x \cdot \sin \frac{\pi}{2}$$

$$= \sin x \cdot 0 + \cos x \cdot 1$$

$$= \cos x$$

$$\cos\left(x + \frac{\pi}{2}\right)$$

$$= \cos x \cdot \cos \frac{\pi}{2} - \sin x \cdot \sin \frac{\pi}{2}$$

$$= \cos x \cdot 0 - \sin x \cdot 1$$

$$= -\sin x$$

$$\begin{aligned}\sin\left(x+\frac{\pi}{3}\right) &= \sin x \cdot \cos\frac{\pi}{3} + \cos x \cdot \sin\frac{\pi}{3} \\ &= \sin x \cdot \frac{1}{2} + \cos x \cdot \frac{\sqrt{3}}{2} \\ &= \frac{1}{2}\sin x + \frac{\sqrt{3}}{2}\cos x\end{aligned}$$

$$\begin{aligned}\cos\left(x+\frac{\pi}{3}\right) &= \cos x \cdot \cos\frac{\pi}{3} - \sin x \cdot \sin\frac{\pi}{3} \\ &= \cos x \cdot \frac{1}{2} - \sin x \cdot \frac{\sqrt{3}}{2} \\ &= \frac{1}{2}\cos x - \frac{\sqrt{3}}{2}\sin x\end{aligned}$$

$$\begin{aligned}\sin\left(x+\frac{\pi}{4}\right) &= \sin x \cdot \cos\frac{\pi}{4} + \cos x \cdot \sin\frac{\pi}{4} \\ &= \sin x \cdot \frac{\sqrt{2}}{2} + \cos x \cdot \frac{\sqrt{2}}{2} \\ &= \frac{\sqrt{2}}{2}\sin x + \frac{\sqrt{2}}{2}\cos x\end{aligned}$$

$$\begin{aligned}\cos\left(x+\frac{\pi}{4}\right) &= \cos x \cdot \cos\frac{\pi}{4} - \sin x \cdot \sin\frac{\pi}{4} \\ &= \cos x \cdot \frac{\sqrt{2}}{2} - \sin x \cdot \frac{\sqrt{2}}{2} \\ &= \frac{\sqrt{2}}{2}\cos x - \frac{\sqrt{2}}{2}\sin x\end{aligned}$$

$$\sin\left(x + \frac{\pi}{6}\right)$$

$$= \sin x \cdot \cos \frac{\pi}{6} + \cos x \cdot \sin \frac{\pi}{6}$$

$$= \sin x \cdot \frac{\sqrt{3}}{2} + \cos x \cdot \frac{1}{2}$$

$$= \frac{\sqrt{3}}{2} \sin x + \frac{1}{2} \cos x$$

$$\cos\left(x + \frac{\pi}{6}\right)$$

$$= \cos x \cdot \cos \frac{\pi}{6} - \sin x \cdot \sin \frac{\pi}{6}$$

$$= \cos x \cdot \frac{\sqrt{3}}{2} - \sin x \cdot \frac{1}{2}$$

$$= \frac{\sqrt{3}}{2} \cos x - \frac{1}{2} \sin x$$

$$\sin\left(x + \frac{\pi}{2}\right)$$

$$\cos\left(x + \frac{\pi}{2}\right)$$

$$\sin\left(x + \frac{\pi}{3}\right)$$

$$\cos\left(x + \frac{\pi}{3}\right)$$

$$\sin\left(x + \frac{\pi}{4}\right)$$

$$\cos\left(x + \frac{\pi}{4}\right)$$

$$\sin\left(x + \frac{\pi}{6}\right)$$

$$\cos\left(x + \frac{\pi}{6}\right)$$