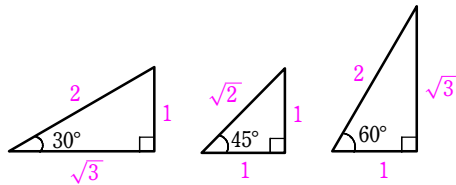


1 次三角関数の公式の右辺を埋めなさい。(nは整数)

- (1) $\sin(\theta + 360^\circ \times n) = \sin \theta$
- (2) $\cos(\theta + 360^\circ \times n) = \cos \theta$
- (3) $\tan(\theta + 360^\circ \times n) = \tan \theta$
- (4) $\sin(-\theta) = -\sin \theta$ (7) $\sin(\theta + 180^\circ) = -\sin \theta$
- (5) $\cos(-\theta) = \cos \theta$ (8) $\cos(\theta + 180^\circ) = -\cos \theta$
- (6) $\tan(-\theta) = -\tan \theta$ (9) $\tan(\theta + 180^\circ) = \tan \theta$

2 右の表を完成させなさい。

(この表は覚えておくこと→)



A	30°	45°	60°
sin A	1/2	1/√2	√3/2
cos A	√3/2	1/√2	1/2
tan A	1/√3	1	√3

3 1の公式を使って、次の三角関数の値を求めなさい。

- (1) $\sin 420^\circ = \sin(60^\circ + 360^\circ) = \sin 60^\circ = \frac{\sqrt{3}}{2}$
- (2) $\cos 765^\circ = \cos(45^\circ + 360^\circ \times 2) = \cos 45^\circ = \frac{1}{\sqrt{2}}$
- (3) $\tan 750^\circ = \tan(30^\circ + 360^\circ \times 2) = \tan 30^\circ = \frac{1}{\sqrt{3}}$

4 1の公式を使って、次の三角関数の値を求めなさい。

- (1) $\sin(-30^\circ) = -\sin 30^\circ = -\frac{1}{2}$
- (2) $\cos(-60^\circ) = \cos 60^\circ = \frac{1}{2}$
- (3) $\tan(-45^\circ) = -\tan 45^\circ = -1$

5 1の公式を使って、次の三角関数の値を求めなさい。

- (1) $\sin 225^\circ = \sin(45^\circ + 180^\circ) = -\sin 45^\circ = -\frac{1}{\sqrt{2}}$
- (2) $\cos 210^\circ = \cos(30^\circ + 180^\circ) = -\cos 30^\circ = -\frac{\sqrt{3}}{2}$
- (3) $\tan 240^\circ = \tan(60^\circ + 180^\circ) = \tan 60^\circ = \sqrt{3}$

6 次三角関数の加法定理の右辺を埋めなさい。

- (1) $\sin(\alpha + \beta) = \sin \alpha \cos \beta + \cos \alpha \sin \beta$
- (2) $\sin(\alpha - \beta) = \sin \alpha \cos \beta - \cos \alpha \sin \beta$
- (3) $\cos(\alpha + \beta) = \cos \alpha \cos \beta - \sin \alpha \sin \beta$
- (4) $\cos(\alpha - \beta) = \cos \alpha \cos \beta + \sin \alpha \sin \beta$

7 加法定理を用いて、次の値を求めなさい。分母は有理化すること。

- (1) $\sin 105^\circ = \sin(60^\circ + 45^\circ) = \sin 60^\circ \cos 45^\circ + \cos 60^\circ \sin 45^\circ = \frac{\sqrt{3}}{2} \times \frac{1}{\sqrt{2}} + \frac{1}{2} \times \frac{1}{\sqrt{2}} = \frac{\sqrt{3} + 1}{2\sqrt{2}} = \frac{\sqrt{6} + \sqrt{2}}{4}$
- (2) $\sin(-15^\circ) = \sin(45^\circ - 60^\circ) = \sin 45^\circ \cos 60^\circ - \cos 45^\circ \sin 60^\circ = \frac{1}{\sqrt{2}} \times \frac{1}{2} - \frac{1}{\sqrt{2}} \times \frac{\sqrt{3}}{2} = \frac{1 - \sqrt{3}}{2\sqrt{2}} = \frac{\sqrt{2} - \sqrt{6}}{4}$
- (3) $\cos 75^\circ = \cos(30^\circ + 45^\circ) = \cos 30^\circ \cos 45^\circ - \sin 30^\circ \sin 45^\circ = \frac{\sqrt{3}}{2} \times \frac{1}{\sqrt{2}} - \frac{1}{2} \times \frac{1}{\sqrt{2}} = \frac{\sqrt{3} - 1}{2\sqrt{2}} = \frac{\sqrt{6} - \sqrt{2}}{4}$
- (4) $\cos(-15^\circ) = \cos(45^\circ - 60^\circ) = \cos 45^\circ \cos 60^\circ + \sin 45^\circ \sin 60^\circ = \frac{1}{\sqrt{2}} \times \frac{1}{2} + \frac{1}{\sqrt{2}} \times \frac{\sqrt{3}}{2} = \frac{1 + \sqrt{3}}{2\sqrt{2}} = \frac{\sqrt{2} + \sqrt{6}}{4}$

8 右の表を完成させなさい。

(この表は覚えておくこと)

θ	0°	90°	180°
sin θ	0	1	0
cos θ	1	0	-1
tan θ	0	なし	0

◎0°, 90°, 180°の三角比 (r=1)

$P_0(1,0), P_{90}(0,1), P_{180}(-1,0)$,

$\sin \theta = \frac{y}{r}$

$\cos \theta = \frac{x}{r}$

$\tan \theta = \frac{y}{x}$

