

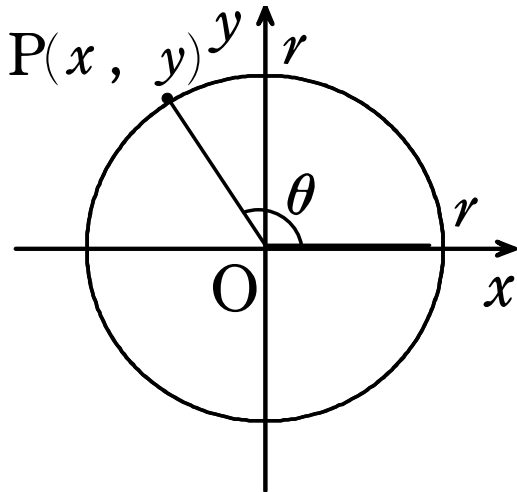
三角比の定義

右図において

$$\sin \theta =$$

$$\cos \theta =$$

$$\tan \theta =$$



$$\sin \theta = \frac{y}{r} \quad \cos \theta = \frac{x}{r}$$

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

$$\sin 120^\circ =$$

$$\cos 120^\circ =$$

$$\tan 120^\circ =$$

$$\sin 120^\circ = \frac{\sqrt{3}}{2} \quad \cos 120^\circ = -\frac{1}{2}$$

$$\tan 120^\circ = -\sqrt{3}$$

$$\sin 135^\circ =$$

$$\cos 135^\circ =$$

$$\tan 135^\circ =$$

$$\sin 135^\circ = \frac{\sqrt{2}}{2} \quad \cos 135^\circ = -\frac{\sqrt{2}}{2}$$

$$\tan 135^\circ = -1$$

$$\sin 30^\circ =$$

$$\cos 30^\circ =$$

$$\tan 30^\circ =$$

$$\sin 30^\circ = \frac{1}{2} \quad \cos 30^\circ = \frac{\sqrt{3}}{2}$$

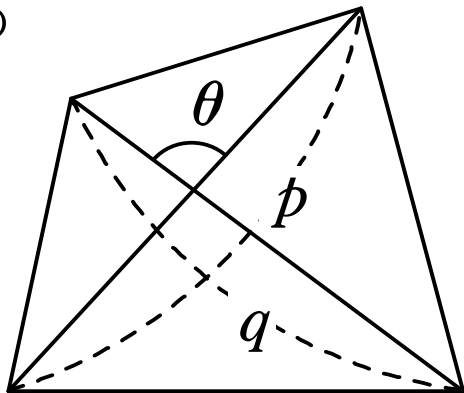
$$\tan 30^\circ = \frac{1}{\sqrt{3}}$$

$$\sin \square^\circ =$$

口頭試問用 $\cos \square^\circ =$

$$\tan \square^\circ =$$

右図の四角形の
面積 S は
 $S=$



$$S = \frac{1}{2} p q \sin \theta$$

三角比の相互関係

$$\tan \theta = \frac{\sin \theta}{\cos \theta}$$

$$\sin^2 \theta + \cos^2 \theta = 1$$

$$1 + \tan^2 \theta = \frac{1}{\cos^2 \theta}$$

$$\sin (90^{\circ} - \theta) =$$

$$\cos (90^{\circ} - \theta) =$$

$$\tan (90^{\circ} - \theta) =$$

$$\sin (90^{\circ} - \theta) = \cos \theta$$

$$\cos (90^{\circ} - \theta) = \sin \theta$$

$$\tan (90^{\circ} - \theta) = \frac{1}{\tan \theta}$$

$$\sin (180^{\circ} - \theta) =$$

$$\cos (180^{\circ} - \theta) =$$

$$\tan (180^{\circ} - \theta) =$$

$$\sin(180^\circ - \theta) = \sin \theta$$

$$\cos(180^\circ - \theta) = -\cos \theta$$

$$\tan(180^\circ - \theta) = -\tan \theta$$

$$\sin(\theta + 180^\circ) =$$

$$\cos(\theta + 180^\circ) =$$

$$\tan(\theta + 180^\circ) =$$

$$\sin(\theta + 180^\circ) = -\sin \theta$$

$$\cos(\theta + 180^\circ) = -\cos \theta$$

$$\tan(\theta + 180^\circ) = \tan \theta$$

$$\sin (90^{\circ} + \theta) =$$

$$\cos (90^{\circ} + \theta) =$$

$$\tan (90^{\circ} + \theta) =$$

$$\sin (90^{\circ} + \theta) = \cos \theta$$

$$\cos (90^{\circ} + \theta) = -\sin \theta$$

$$\tan (90^{\circ} + \theta) = -\frac{1}{\tan \theta}$$

$$\sin(\theta - 90^\circ) =$$

$$\cos(\theta - 90^\circ) =$$

$$\tan(\theta - 90^\circ) =$$

$$\sin(\theta - 90^\circ) = -\cos \theta$$

$$\cos(\theta - 90^\circ) = \sin \theta$$

$$\tan(\theta - 90^\circ) = -\frac{1}{\tan \theta}$$

余弦定理

$$a^2 = b^2 + c^2 - 2bc \cos A$$

$$b^2 = c^2 + a^2 - 2ca \cos B$$

$$c^2 = a^2 + b^2 - 2ab \cos C$$

正弦定理

$$\frac{a}{\sin A} = \frac{b}{\sin B} = \frac{c}{\sin C} = 2R$$

(R は外接円の半径)

余弦定理

$$\cos A =$$

$$\cos B =$$

$$\cos C =$$

$$\cos A = \frac{b^2 + c^2 - a^2}{2bc}$$

$$\cos B = \frac{c^2 + a^2 - b^2}{2ca}$$

$$\cos C = \frac{a^2 + b^2 - c^2}{2ab}$$

$\triangle ABC$ の面積は
(2 辺とその間の角)

$$S = \frac{1}{2}bc \sin A$$

$$= \frac{1}{2}ca \sin B$$

$$= \frac{1}{2}ab \sin C$$

ヘロンの公式

$s =$ のとき

$\triangle ABC$ の面積 S は

$$s = \frac{a + b + c}{2} \text{ のとき}$$

$$S = \sqrt{s(s - a)(s - b)(s - c)}$$

半径 r の球の

体積は, 表面積は

体積は $V = \frac{4}{3}\pi r^3$

表面積は $S = 4\pi r^2$