

氏名 _____

■ 正弦定理 (正弦とは sin のことです)

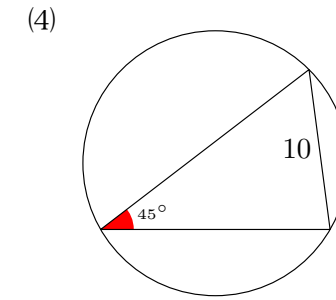
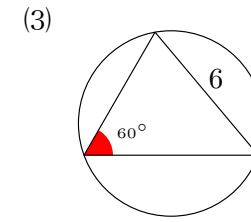
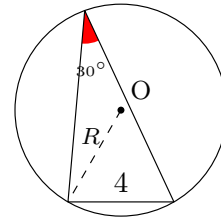
正弦定理を使うと、外接円の半径 R を求めることができる。

$$\frac{\text{角度の向かい側にある辺の長さ}}{\sin \text{角度}} = 2R$$

例題 右の三角形で、 $\triangle ABC$ の外接円の半径 R を求めよ。

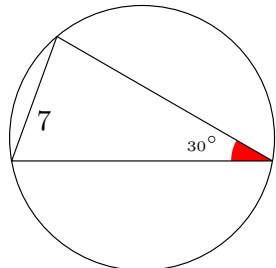
解

$$\begin{aligned} \frac{4}{\sin 30^\circ} &= 2R \\ \frac{1}{2} \times \frac{4^2}{\sin 30^\circ} &= 2R \times \frac{1}{2} \\ \frac{2}{\sin 30^\circ} &= R \\ 2 \div \sin 30^\circ &= R \\ 2 \div \frac{1}{2} &= R \\ 2 \times \frac{2}{1} &= R \\ 4 &= R \end{aligned}$$

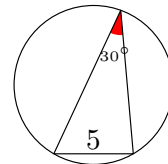


1 次の三角形の外接円の半径 R を求めなさい。

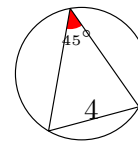
(1)



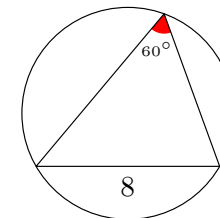
(2)



(5)



(6)



$$\begin{aligned} \frac{\sqrt{3}}{1} &= \frac{2}{1} \cdot \tan 150^\circ = \frac{2}{1} \cdot \cos 150^\circ = \frac{2}{1} \cdot \sin 150^\circ = \frac{2}{1} \cdot \cos 150^\circ = \frac{2}{1} \cdot \sin 150^\circ \\ \frac{\sqrt{3}}{1} &= \frac{2}{1} \cdot \tan 135^\circ = \frac{2}{1} \cdot \cos 135^\circ = \frac{2}{1} \cdot \sin 135^\circ = \frac{2}{1} \cdot \cos 135^\circ = \frac{2}{1} \cdot \sin 135^\circ \\ \frac{\sqrt{3}}{1} &= \frac{2}{1} \cdot \tan 120^\circ = \frac{2}{1} \cdot \cos 120^\circ = \frac{2}{1} \cdot \sin 120^\circ = \frac{2}{1} \cdot \cos 120^\circ = \frac{2}{1} \cdot \sin 120^\circ \\ \frac{\sqrt{3}}{1} &= \frac{2}{1} \cdot \tan 45^\circ = \frac{2}{1} \cdot \cos 45^\circ = \frac{2}{1} \cdot \sin 45^\circ = \frac{2}{1} \cdot \cos 45^\circ = \frac{2}{1} \cdot \sin 45^\circ \\ \frac{\sqrt{3}}{1} &= \frac{2}{1} \cdot \tan 30^\circ = \frac{2}{1} \cdot \cos 30^\circ = \frac{2}{1} \cdot \sin 30^\circ = \frac{2}{1} \cdot \cos 30^\circ = \frac{2}{1} \cdot \sin 30^\circ \\ \frac{\sqrt{3}}{1} &= \frac{2}{1} \cdot \tan 60^\circ = \frac{2}{1} \cdot \cos 60^\circ = \frac{2}{1} \cdot \sin 60^\circ = \frac{2}{1} \cdot \cos 60^\circ = \frac{2}{1} \cdot \sin 60^\circ \\ \frac{\sqrt{3}}{1} &= \frac{2}{1} \cdot \tan 45^\circ = \frac{2}{1} \cdot \cos 45^\circ = \frac{2}{1} \cdot \sin 45^\circ = \frac{2}{1} \cdot \cos 45^\circ = \frac{2}{1} \cdot \sin 45^\circ \\ \frac{\sqrt{3}}{1} &= \frac{2}{1} \cdot \tan 30^\circ = \frac{2}{1} \cdot \cos 30^\circ = \frac{2}{1} \cdot \sin 30^\circ = \frac{2}{1} \cdot \cos 30^\circ = \frac{2}{1} \cdot \sin 30^\circ \\ \frac{\sqrt{3}}{1} &= \frac{2}{1} \cdot \tan 60^\circ = \frac{2}{1} \cdot \cos 60^\circ = \frac{2}{1} \cdot \sin 60^\circ = \frac{2}{1} \cdot \cos 60^\circ = \frac{2}{1} \cdot \sin 60^\circ \end{aligned}$$

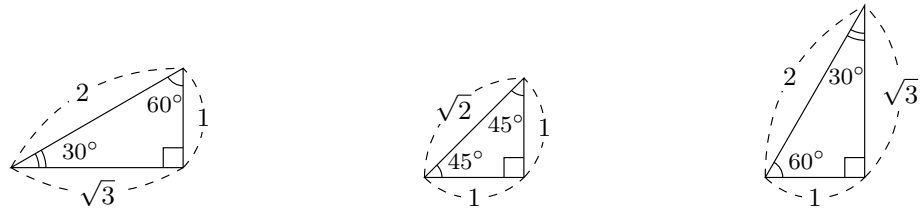
■ 三角比の拡張

• $\sin A = \frac{\text{縦}}{\text{斜め}}$

• $\cos A = \frac{\text{横}}{\text{斜め}}$

• $\tan A = \frac{\text{縦}}{\text{横}}$

2 (復習) 次の直角三角形を用いて、 30° 、 45° 、 60° の \sin 、 \cos 、 \tan の値を求めなさい。



$$\sin 30^\circ = \square$$

$$\cos 30^\circ = \square$$

$$\tan 30^\circ = \square$$

$$\sin 45^\circ = \square$$

$$\cos 45^\circ = \square$$

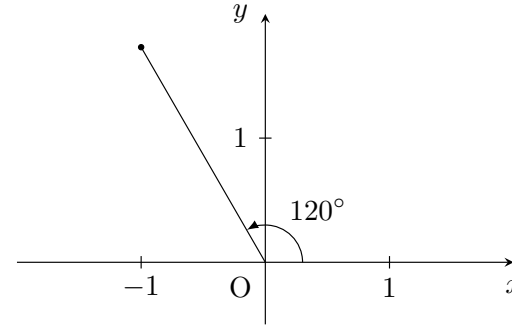
$$\tan 45^\circ = \square$$

$$\sin 60^\circ = \square$$

$$\cos 60^\circ = \square$$

$$\tan 60^\circ = \square$$

■ 120° の三角比

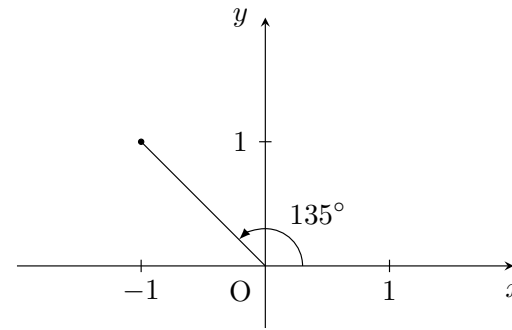


$$\sin 120^\circ = \square$$

$$\cos 120^\circ = \square$$

$$\tan 120^\circ = \square$$

■ 135° の三角比

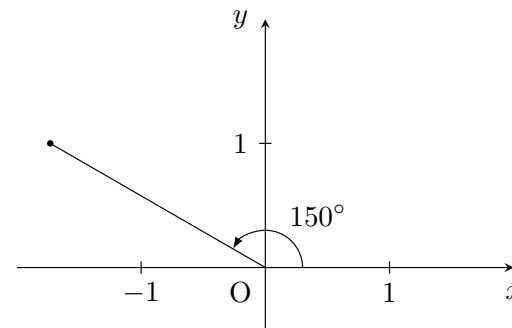


$$\sin 135^\circ = \square$$

$$\cos 135^\circ = \square$$

$$\tan 135^\circ = \square$$

■ 150° の三角比



$$\sin 150^\circ = \square$$

$$\cos 150^\circ = \square$$

$$\tan 150^\circ = \square$$