数学Ⅰ　授業プリント ＃ 55（その 2）

年　　組　　号

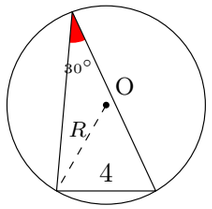
氏名

■　正弦定理（正弦（せいげん）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，△ABC の外接円の半径 R を求めよ。



解

$$\frac{4}{\sin 30^\circ} = 2R$$

$$\frac{1}{\cancel{2}_{1}} \times \frac{\cancel{4}^{2}}{\sin 30^\circ} = 2R \times \frac{1}{2}$$

$$\frac{2}{\sin 30^\circ} = R$$

$$2 \div \sin 30^\circ = R$$

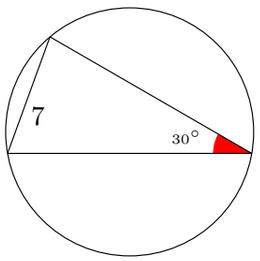
$$2 \div \frac{1}{2} = R$$

$$2 \times \frac{2}{1} = R$$

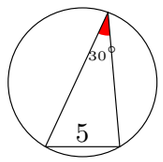
$$4 = R$$

1　次の三角形の外接円の半径 R を求めなさい。

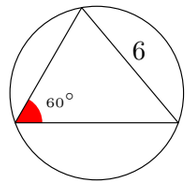
(1)



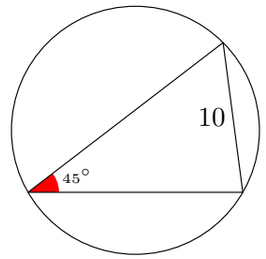
(2)



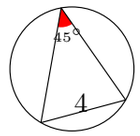
(3)



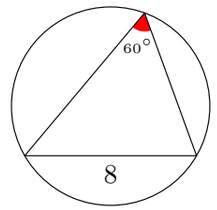
(4)



(5)



(6)

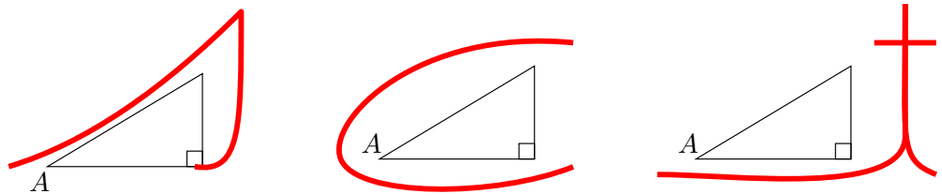


2　$\sin 30^\circ = \frac{1}{2}$, $\sin 45^\circ = \frac{1}{\sqrt{2}}$, $\sin 60^\circ = \frac{\sqrt{3}}{2}$　$\cos 30^\circ = \frac{\sqrt{3}}{2}$, $\cos 45^\circ = \frac{1}{\sqrt{2}}$, $\cos 60^\circ = \frac{1}{2}$　$\tan 30^\circ = \frac{1}{\sqrt{3}}$, $\tan 45^\circ = 1$, $\tan 60^\circ = \sqrt{3}$　$\sin 120^\circ = \frac{\sqrt{3}}{2}$, $\cos 120^\circ = \frac{-1}{2}$, $\tan 120^\circ = -\sqrt{3}$　$\sin 135^\circ = \frac{1}{\sqrt{2}}$, $\cos 135^\circ = \frac{-1}{\sqrt{2}}$, $\tan 135^\circ = -1$

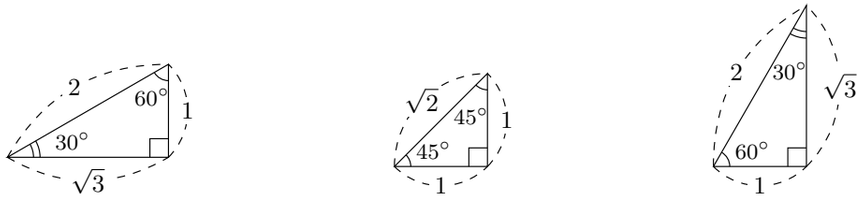
$\sin 150^\circ = \frac{1}{2}$, $\cos 150^\circ = \frac{-\sqrt{3}}{2}$, $\tan 150^\circ = \frac{-1}{\sqrt{3}}$

■ 三角比の拡張

- $\sin A = \dfrac{縦}{斜め}$
- $\cos A = \dfrac{横}{斜め}$
- $\tan A = \dfrac{縦}{横}$



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。

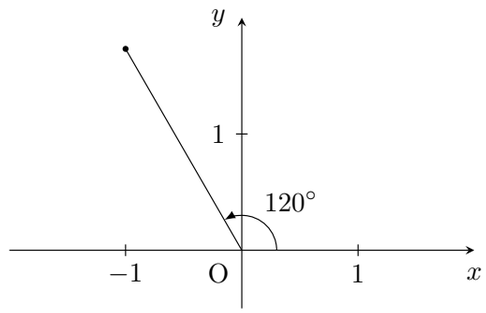


$\sin 30^\circ =$ □　$\sin 45^\circ =$ □　$\sin 60^\circ =$ □

$\cos 30^\circ =$ □　$\cos 45^\circ =$ □　$\cos 60^\circ =$ □

$\tan 30^\circ =$ □　$\tan 45^\circ =$ □　$\tan 60^\circ =$ □

■ 120° の三角比

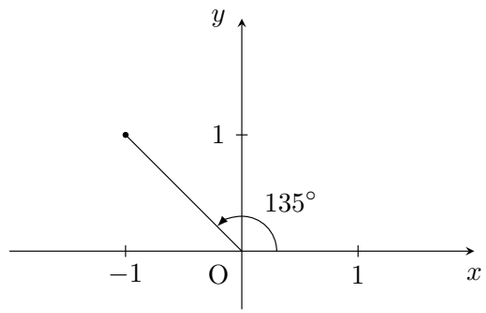


$\sin 120^\circ =$ □

$\cos 120^\circ =$ □

$\tan 120^\circ =$ □

■ 135° の三角比

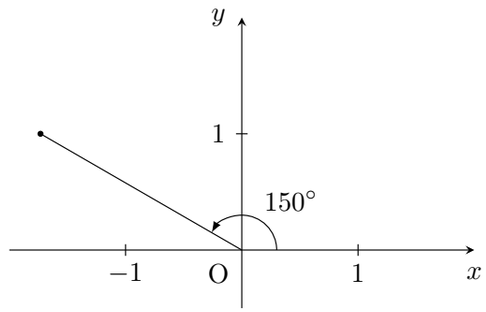


$\sin 135^\circ =$ □

$\cos 135^\circ =$ □

$\tan 135^\circ =$ □

■ 150° の三角比



$\sin 150^\circ =$ □

$\cos 150^\circ =$ □

$\tan 150^\circ =$ □

数学プリント#55（その 2） 1 (1) 7 (2) 5 (3) $2\sqrt{3}$ (4) $5\sqrt{2}$ (5) $2\sqrt{2}$ (6) $\dfrac{8\sqrt{3}}{3}$