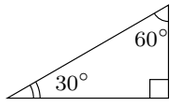
数学Ⅰ　授業プリント ＃ 52, 58

年　　組　　号

氏名

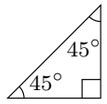
(復習) 次の直角三角形を用いて，30°，45°，60°，120°，135°，150° の sin，cos，tan の値を求めなさい。



$\sin 30^\circ =$ □

$\cos 30^\circ =$ □

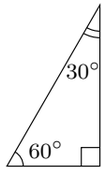
$\tan 30^\circ =$ □



$\sin 45^\circ =$ □

$\cos 45^\circ =$ □

$\tan 45^\circ =$ □

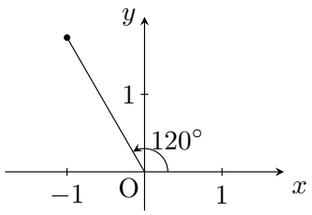


$\sin 60^\circ =$ □

$\cos 60^\circ =$ □

$\tan 60^\circ =$ □

■ 120° の三角比

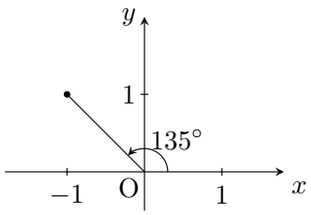


$\sin 120^\circ =$ □

$\cos 120^\circ =$ □

$\tan 120^\circ =$ □

■ 135° の三角比

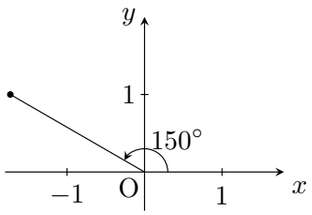


$\sin 135^\circ =$ □

$\cos 135^\circ =$ □

$\tan 135^\circ =$ □

■ 150° の三角比



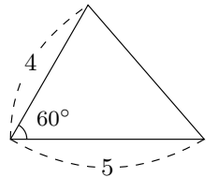
$\sin 150^\circ =$ □

$\cos 150^\circ =$ □

$\tan 150^\circ =$ □

(三角形の面積) $= \dfrac{1}{2} \times$ (辺の長さ) $\times$ (辺の長さ) $\times \sin$ (間の角度)

例題　右の三角形の面積を求めなさい。

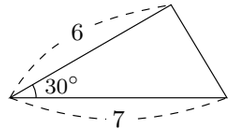


解

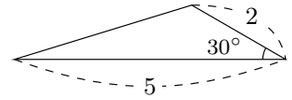
$$\begin{aligned} \text{面積} &= \frac{1}{2} \times 4 \times 5 \times \sin 60^\circ \\ &= \frac{1}{2} \times 4 \times 5 \times \frac{\sqrt{3}}{2} \\ &= \frac{1}{\cancel{2}_{1}} \times \cancel{4}^{\cancel{2}^{1}} \times 5 \times \frac{\sqrt{3}}{\cancel{2}_{1}} \\ &= 5\sqrt{3} \quad \text{答} \end{aligned}$$

1　次の三角形の面積を求めなさい。

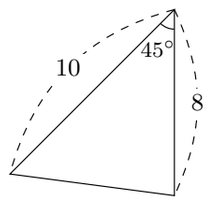
(1)



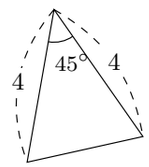
(2)



(3)

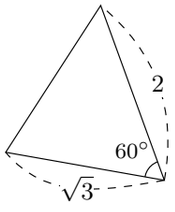


(4)

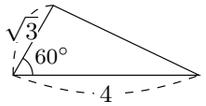


数学プリント＃52, 58 (5) $\frac{3}{2}$ (6) 3 (7) $\frac{27}{2}$ (8) $7\sqrt{2}$ 1 (1) $5\sqrt{2}$ (2) $12\sqrt{3}$ (3) $\frac{27}{2}$ (4) $51\sqrt{2}$ (5) $2\sqrt{3}$ (6) $6\sqrt{3}$ (7) 6 (8) $3\sqrt{2}$

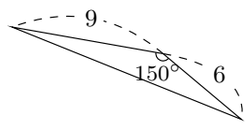
(5)



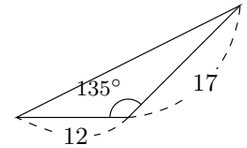
(6)



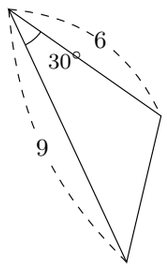
(3)



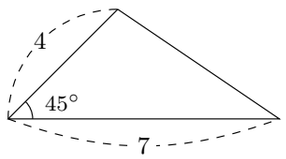
(4)



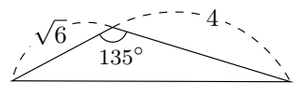
(7)



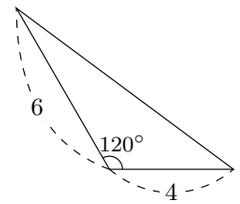
(8)



(5)



(6)



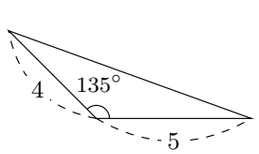
■　三角形の面積

次に 120°，135°，150° を使って，三角形の面積を計算しよう。

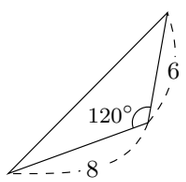
$$(\text{三角形の面積}) = \frac{1}{2} \times (\text{辺の長さ}) \times (\text{辺の長さ}) \times \sin(\text{間の角度})$$

2 次の三角形の面積を求めなさい。

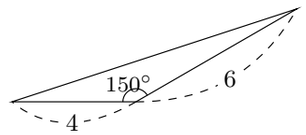
(1)



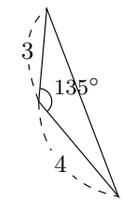
(2)



(7)



(8)



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

1 (1) $\frac{21}{2}$ (2) $\frac{5}{2}$ (3) $20\sqrt{2}$ (4) $4\sqrt{2}$