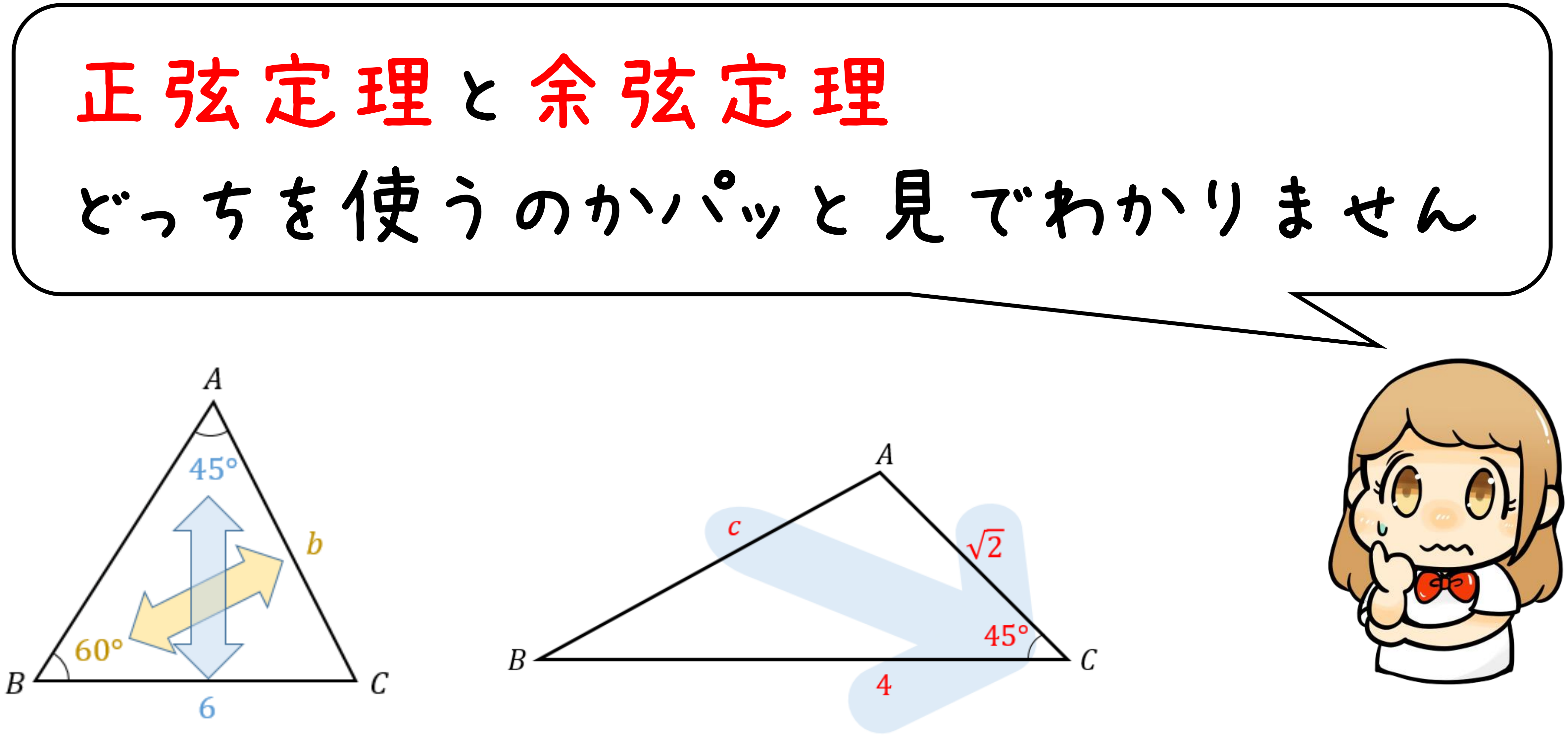
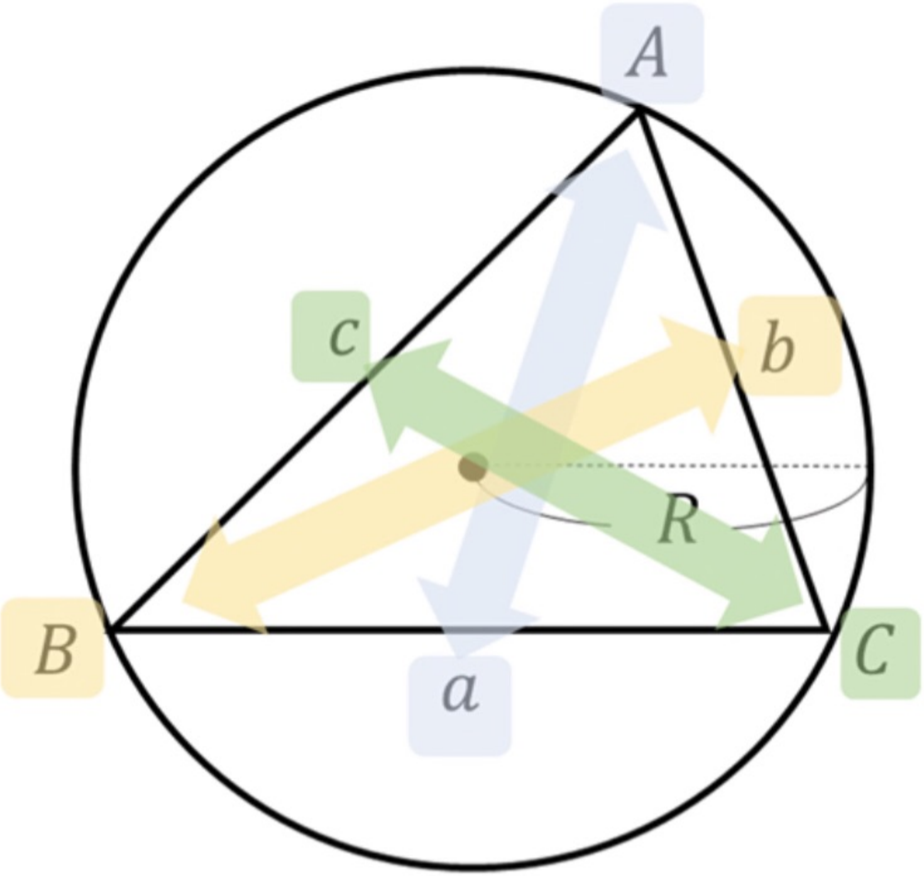
正弦定理と余弦定理どっちでしょう？？



正弦定理の使いどころ！

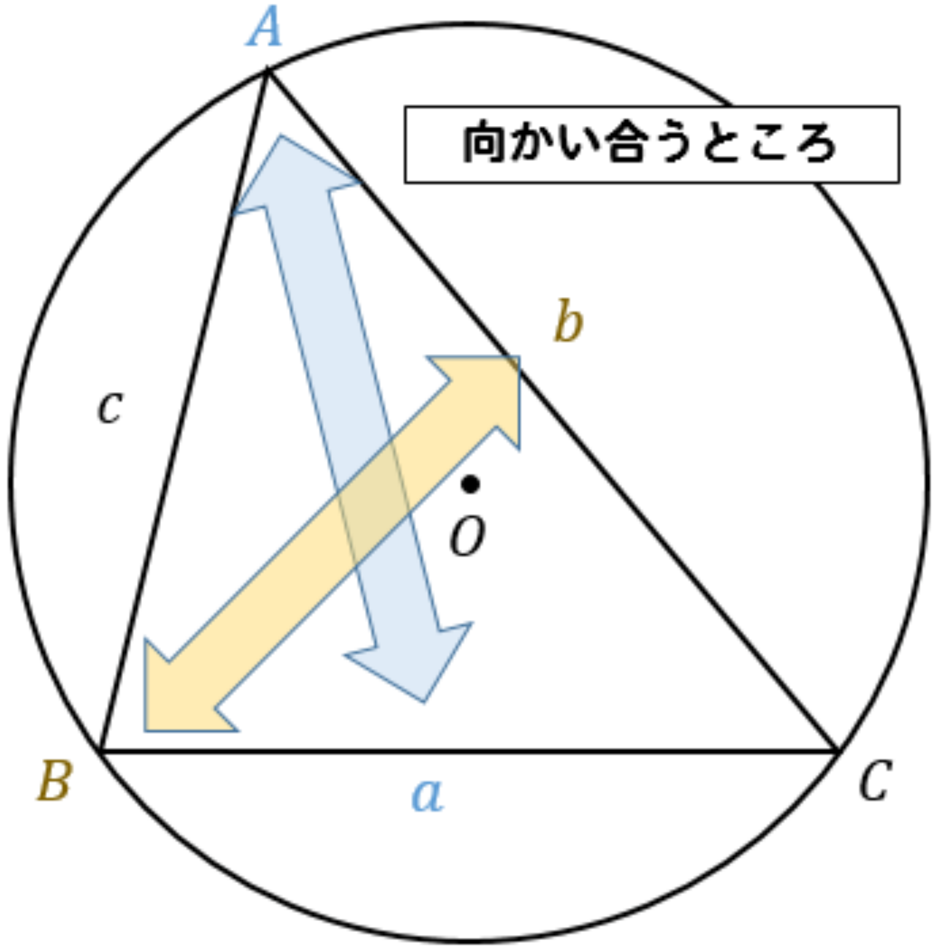


《正弦定理》

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

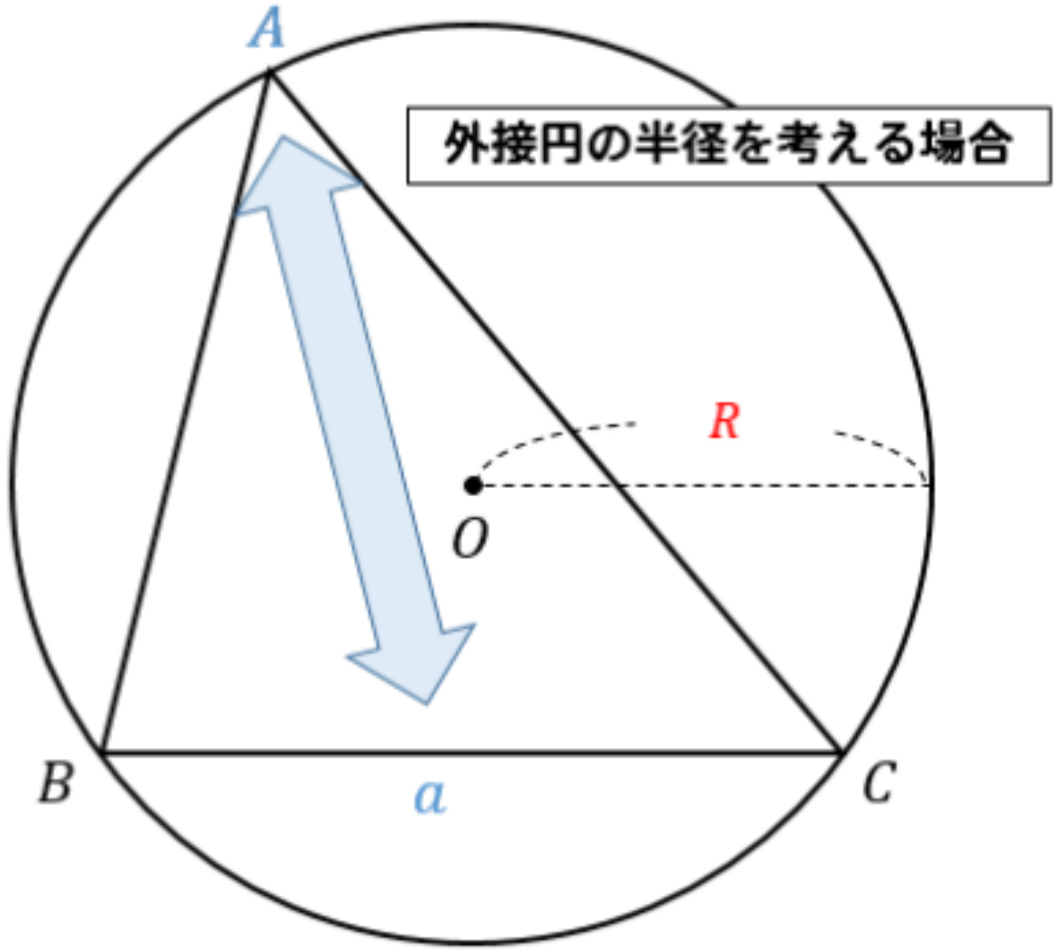
2辺 2角

向かい合う辺と角
外接円の半径について考えるときには
正弦定理を使うといいよ！



正弦定理

$$\frac{a}{\sin A} = \frac{b}{\sin B}$$

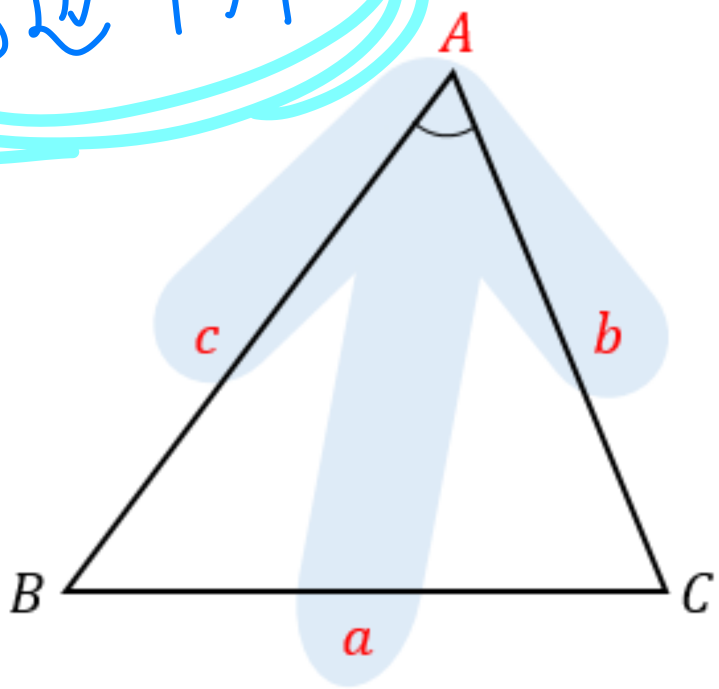


正弦定理

$$\frac{a}{\sin A} = 2R$$

余弦定理の使いどころ！

3辺1角



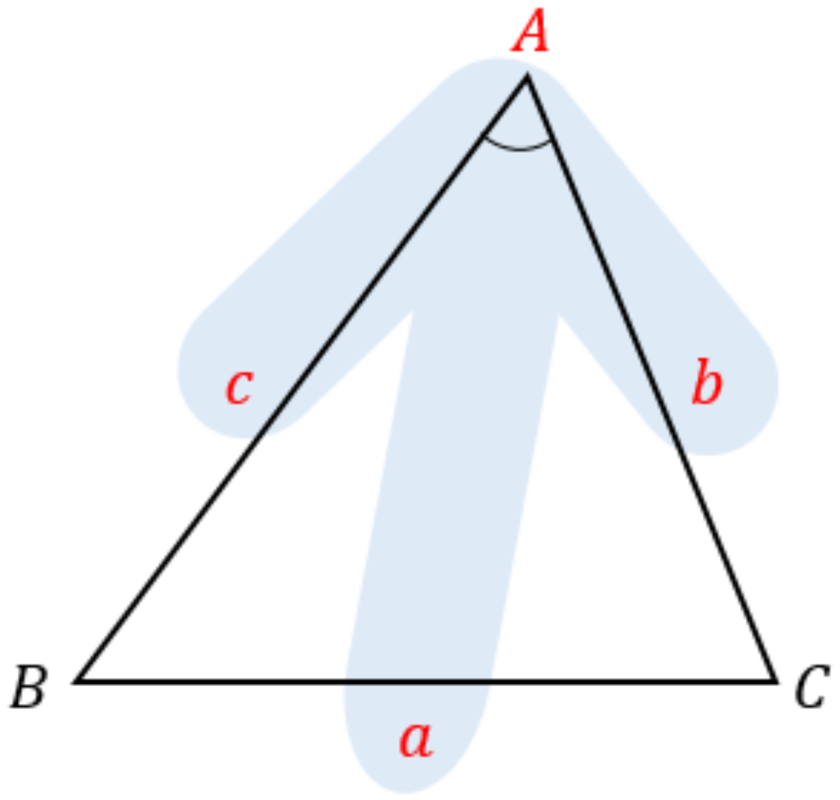
《余弦定理》

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

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

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

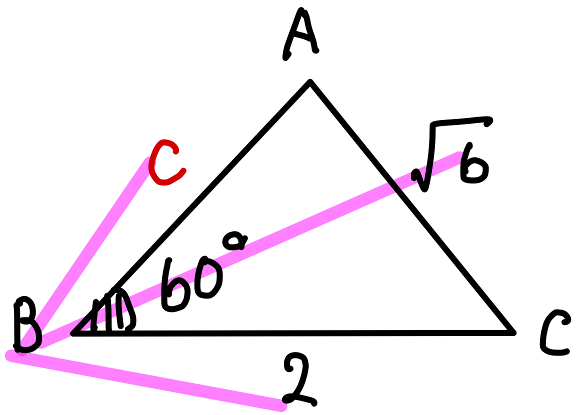
わかっている値，求めたい値を図に書き込んでみたとき
下の図のように矢印型になっているときには余弦定理を使う！



余弦定理

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

$a=2, b=\sqrt{6}, B=60°$ のとき，c



3辺1角 → 余弦

$\frac{1}{2}$

$$6 = 4 + c^2 - 4c \cdot \cos 60°$$

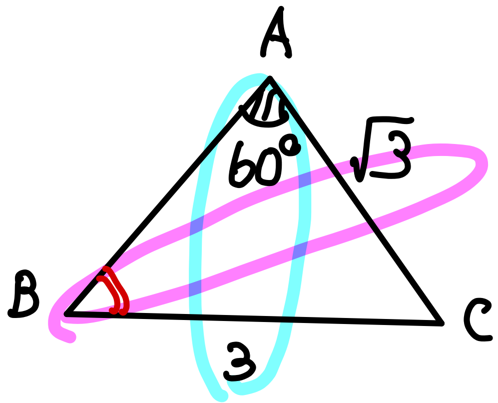
$$c^2 - 2c - 2 = 0$$

$$c = \frac{2 \pm \sqrt{4+8}}{2} = \frac{2 \pm \sqrt{12}}{2} = 1 \pm \sqrt{3}$$

$c > 0$ より

$$c = 1 + \sqrt{3}$$

$a=3, b=\sqrt{3}, A=60°$ のとき，B



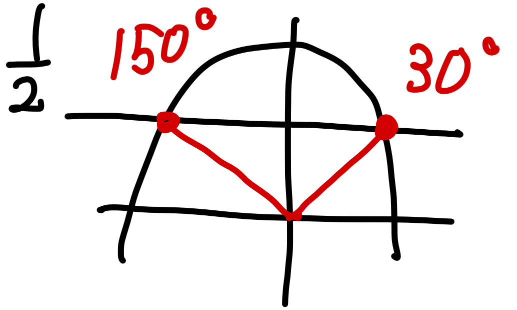
2辺2角 → 正弦

$$\frac{\sqrt{3}}{\sin B} = \frac{3}{\sin 60°}$$

$$\sqrt{3} \sin 60° = 3 \sin B$$

$$\sin B = \frac{\sqrt{3}}{3} \sin 60°$$

$$\sin B = \frac{\sqrt{3}}{3} \times \frac{\sqrt{3}}{2} = \frac{1}{2}$$

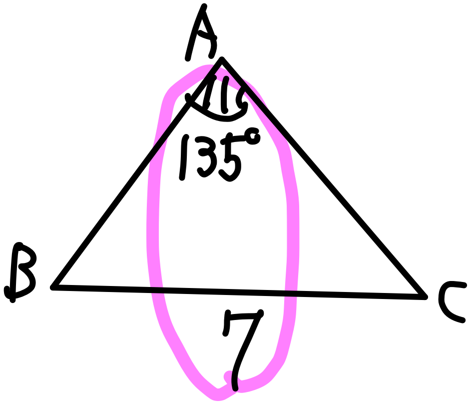


150°は不適

$$B = 30°$$

$A = 135°, a = 7$ のとき,
外接円の半径 R

正弦



$$\frac{7}{\sin 135°} = 2R$$

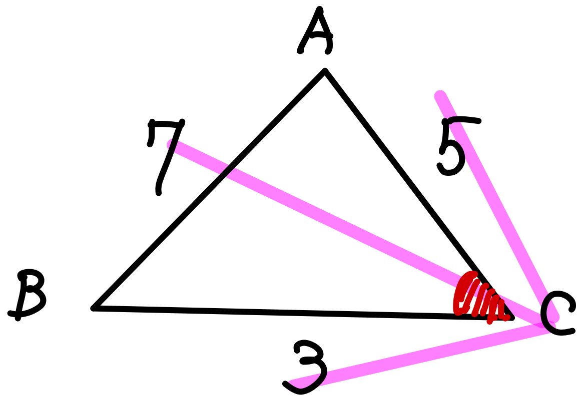
$\frac{1}{\sqrt{2}}$

$$\frac{1}{2} \times 7 \div \sin 135° = R$$

$$\frac{7}{2} \times \sqrt{2} = R$$

$$R = \frac{7\sqrt{2}}{2}$$

$a = 3, b = 5, c = 7$ のとき, C



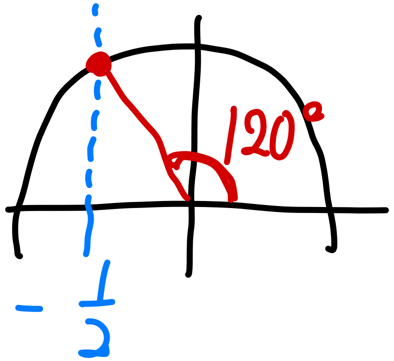
3辺 1角

余弦

$$\cos C = \frac{9+25-49}{2 \cdot 3 \cdot 5}$$

$$= \frac{-15}{30}$$

$$= -\frac{1}{2}$$



$$C = 120°$$