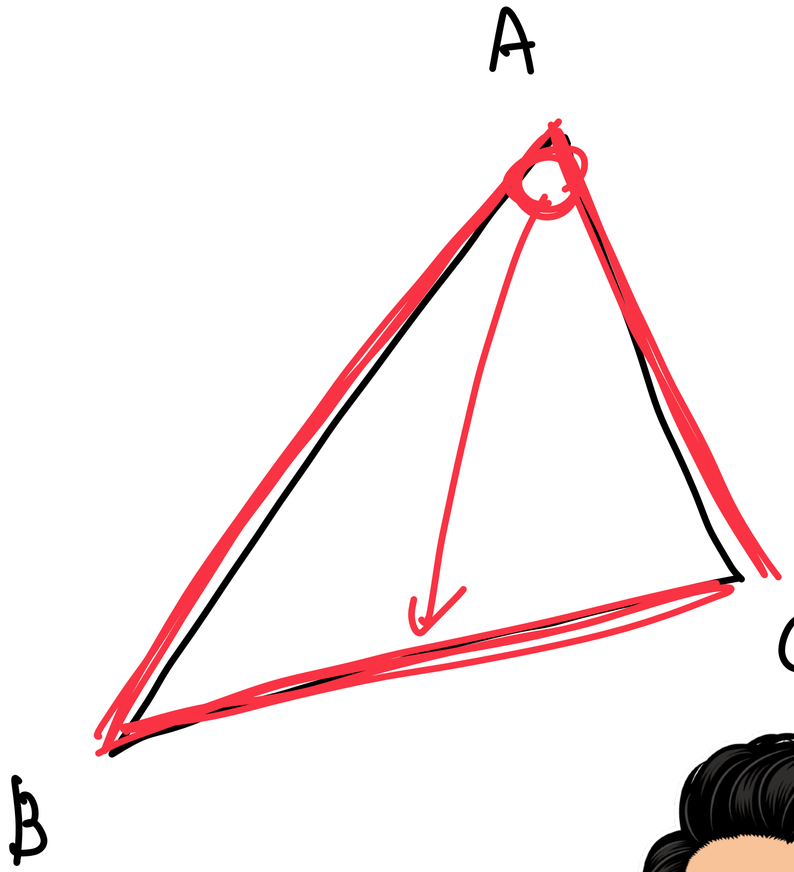
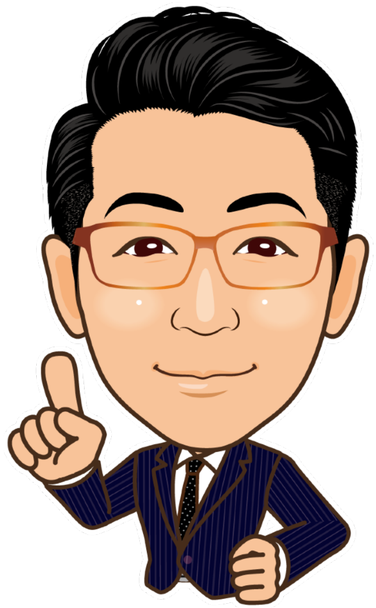
数学I
第４章　図形と計量
余弦定理







【余弦定理】

$$a^2 = b^2 + c^2 - 2bc\cos A$$ ○

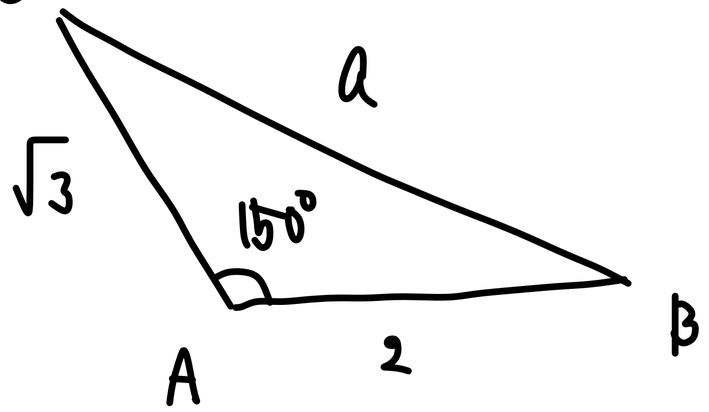
$$b^2 = a^2 + c^2 - 2ac\cos B$$ ×

$$c^2 = a^2 + b^2 - 2ab\cos C$$ ×

2辺と間の角は向い側

(例)

(1)



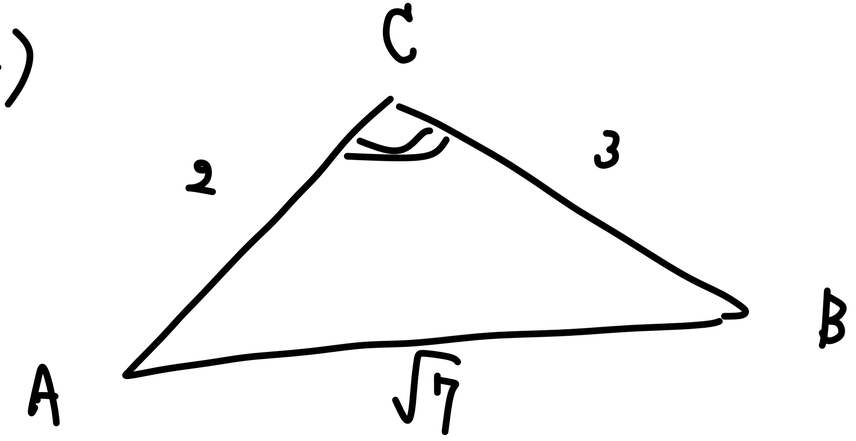
$a^2 = 2^2 + \sqrt{3}^2 - 2\times2\times\sqrt{3}\cos150^\circ$

$= 4 + 3 - 4\sqrt{3} \times \left(-\frac{\sqrt{3}}{2}\right)$

$= 7 + 6 = 13 \quad a^2 = 13$

$a = \sqrt{13}$

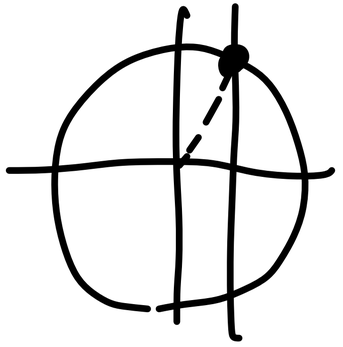
(2)



$\sqrt{7}^2 = 2^2 + 3^2 - 2\times2\times3\times\cos C$

$7 = 4 + 9 - 12\cos C$

$\cos C = \frac{1}{2}$



$C = 60^\circ$