

$$\frac{g\bar{u}}{4} = \frac{8\bar{u} + \bar{u}}{4}$$

$$= 2\bar{u} + \frac{\bar{u}}{4}$$

$$g = 8 + 1$$

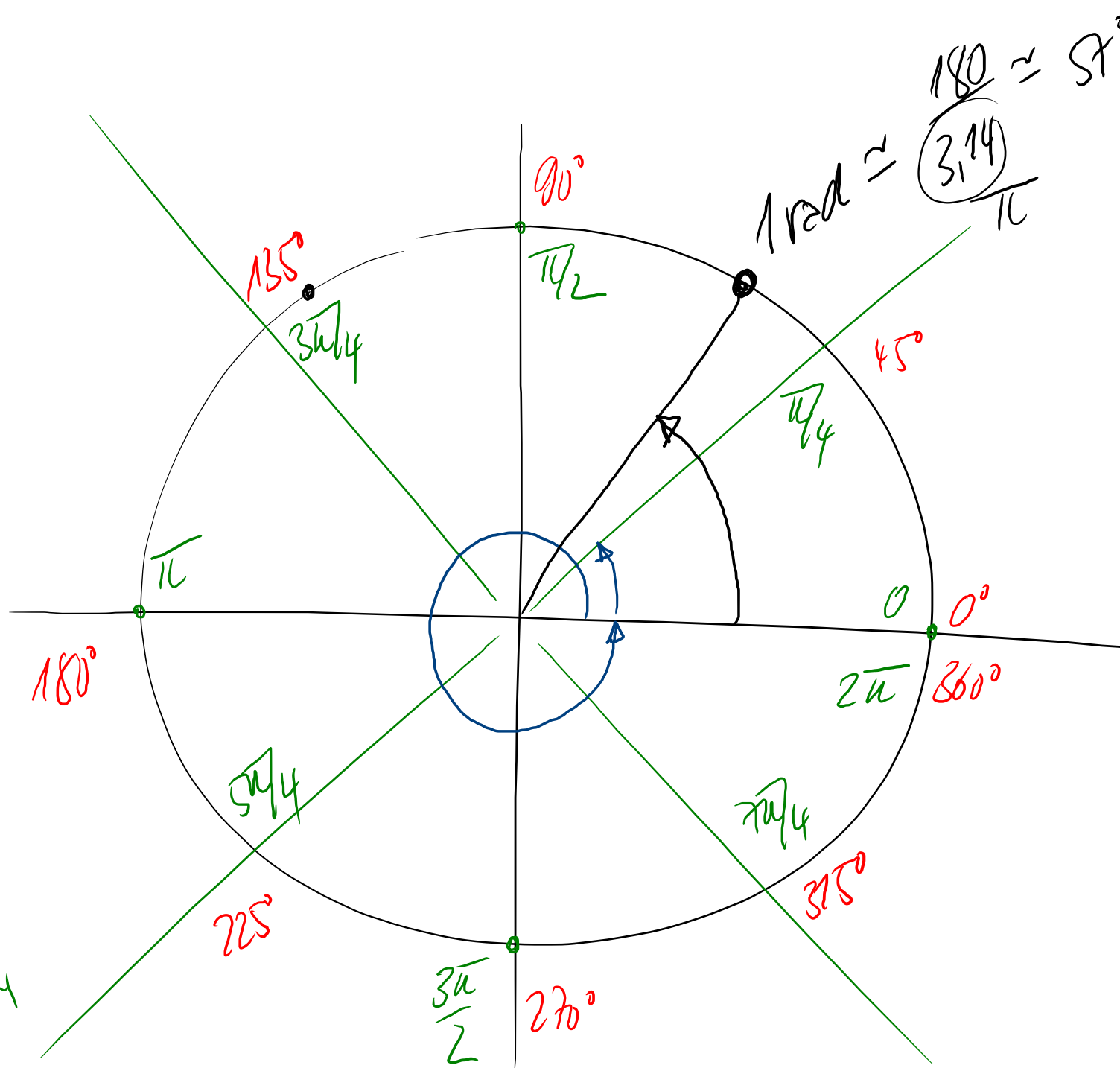
$$g \cdot \frac{1}{4} = \frac{8+1}{4}$$

$$= \frac{8}{4} + \frac{1}{4}$$

$$= 2 + \frac{1}{4}$$

$$\frac{g}{4} \cdot \bar{u} = \left(2 + \frac{1}{4}\right) \cdot \bar{u} = 2\bar{u} + \frac{1}{4} \cdot \bar{u}$$

$$= 2\bar{u} + \frac{\bar{u}}{4}$$



$$\pi \leftrightarrow 180$$

$$\text{rad}$$

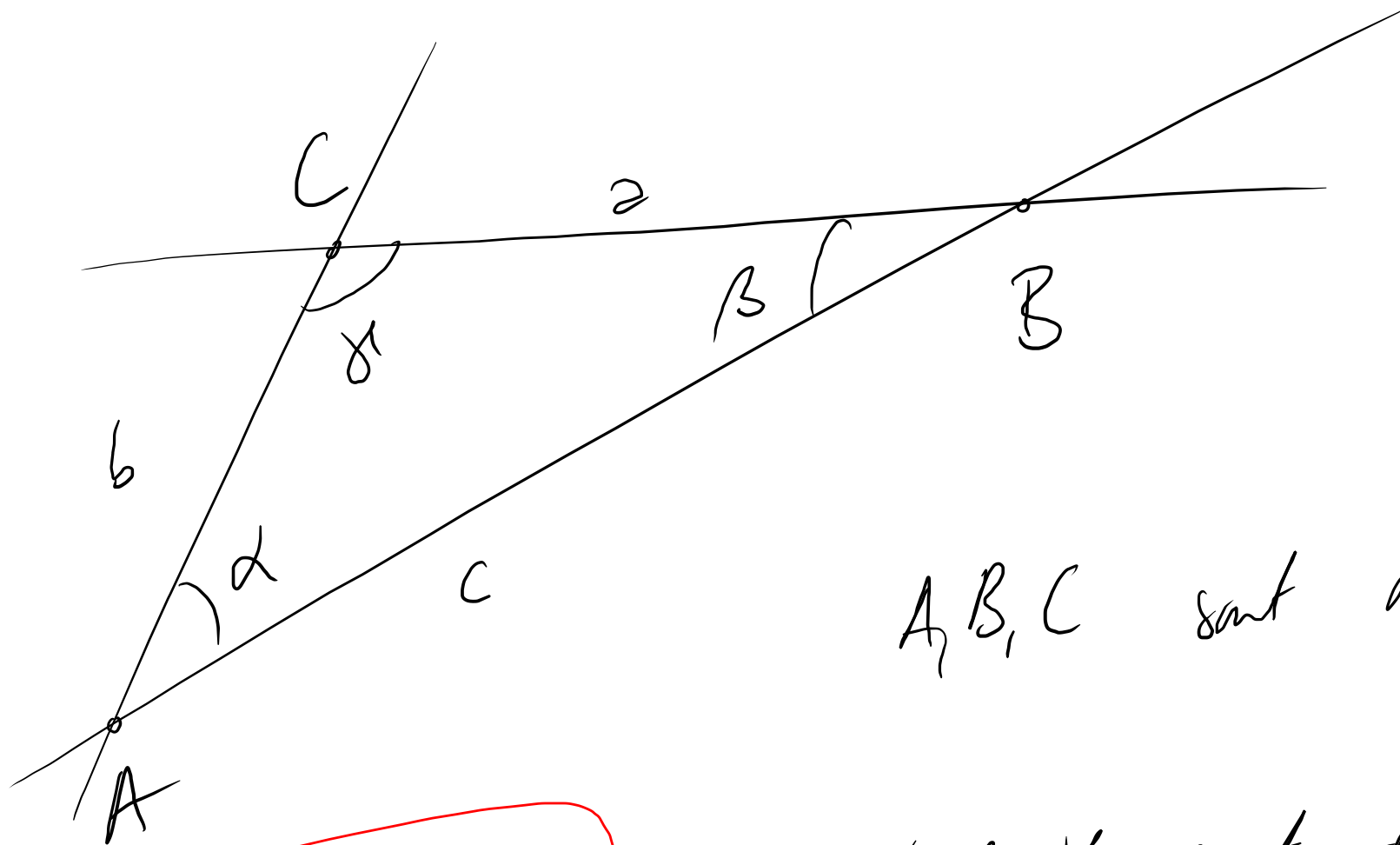
$$\frac{3\pi}{7} = \frac{3 \cdot 180}{7}$$

$$1 \text{ rad} = ?^\circ$$

$$\frac{1}{\pi} = \frac{x}{180^\circ}$$

$$\pi \approx 3.14159265358979\dots$$

$$\pi \leftrightarrow 180^\circ$$



A, B, C sont des points

α, β, γ sont des angles

a, b, c sont des longueurs

$$\text{Si } \gamma = 90^\circ, \quad a^2 + b^2 = c^2$$

Pythagore

4.2.1

Résoudre un triangle

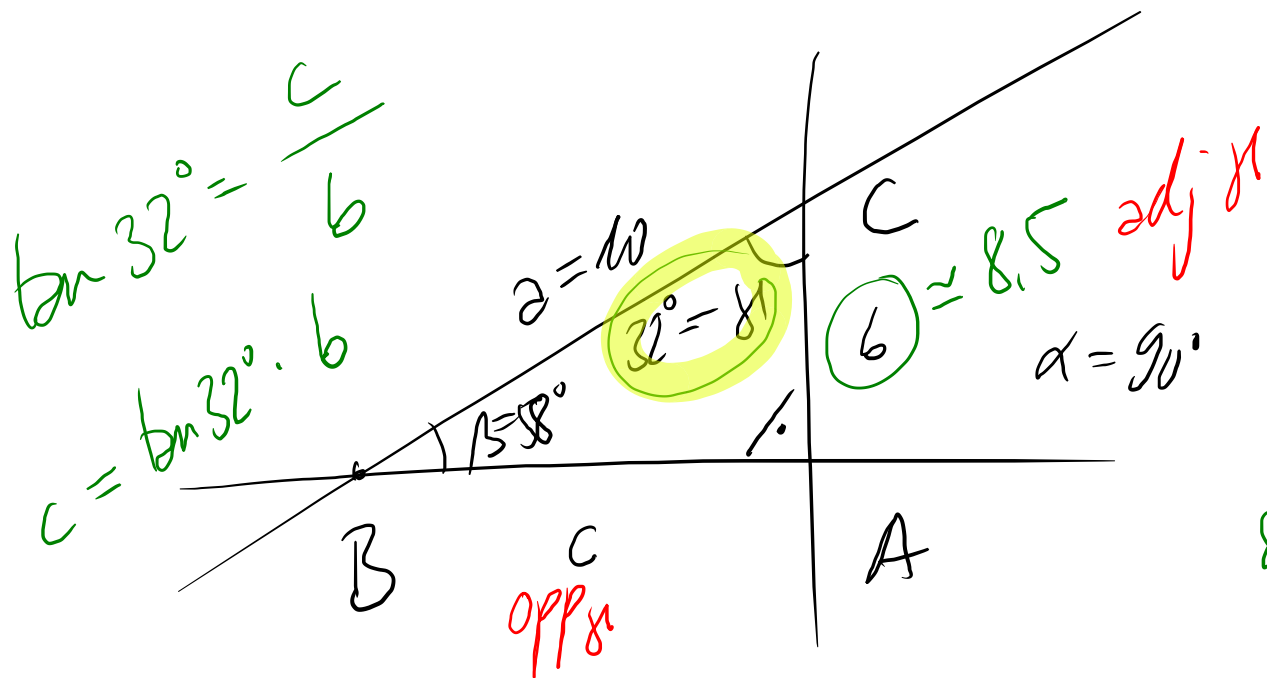
calculer < toutes les longueurs
tous les angles

a) $\alpha = 32^\circ$ $BC = 10 = a$

$$\beta = 90^\circ - 32^\circ = 58^\circ$$

$$b \approx 8,5$$

$$c \approx 5,3$$



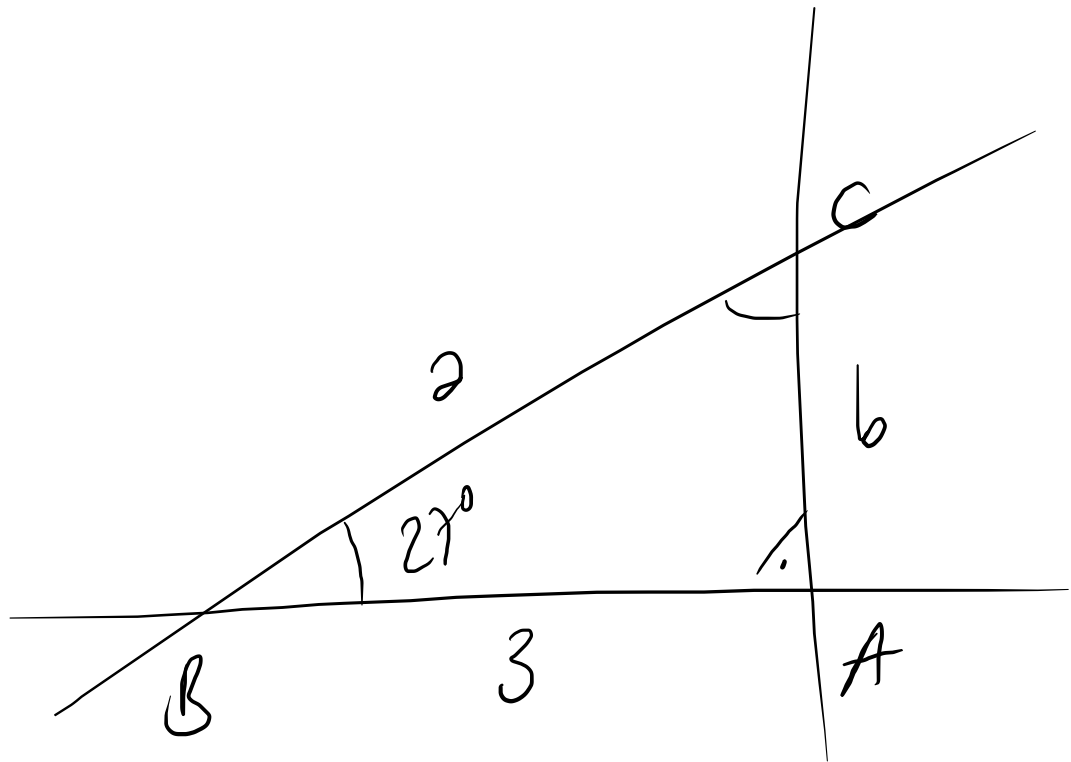
$$\sin \alpha = \frac{c}{a} \Leftrightarrow c = 10 \cdot \sin 32^\circ$$

~~3 = 1/4~~

$$\cos \theta = \frac{adj}{10}$$

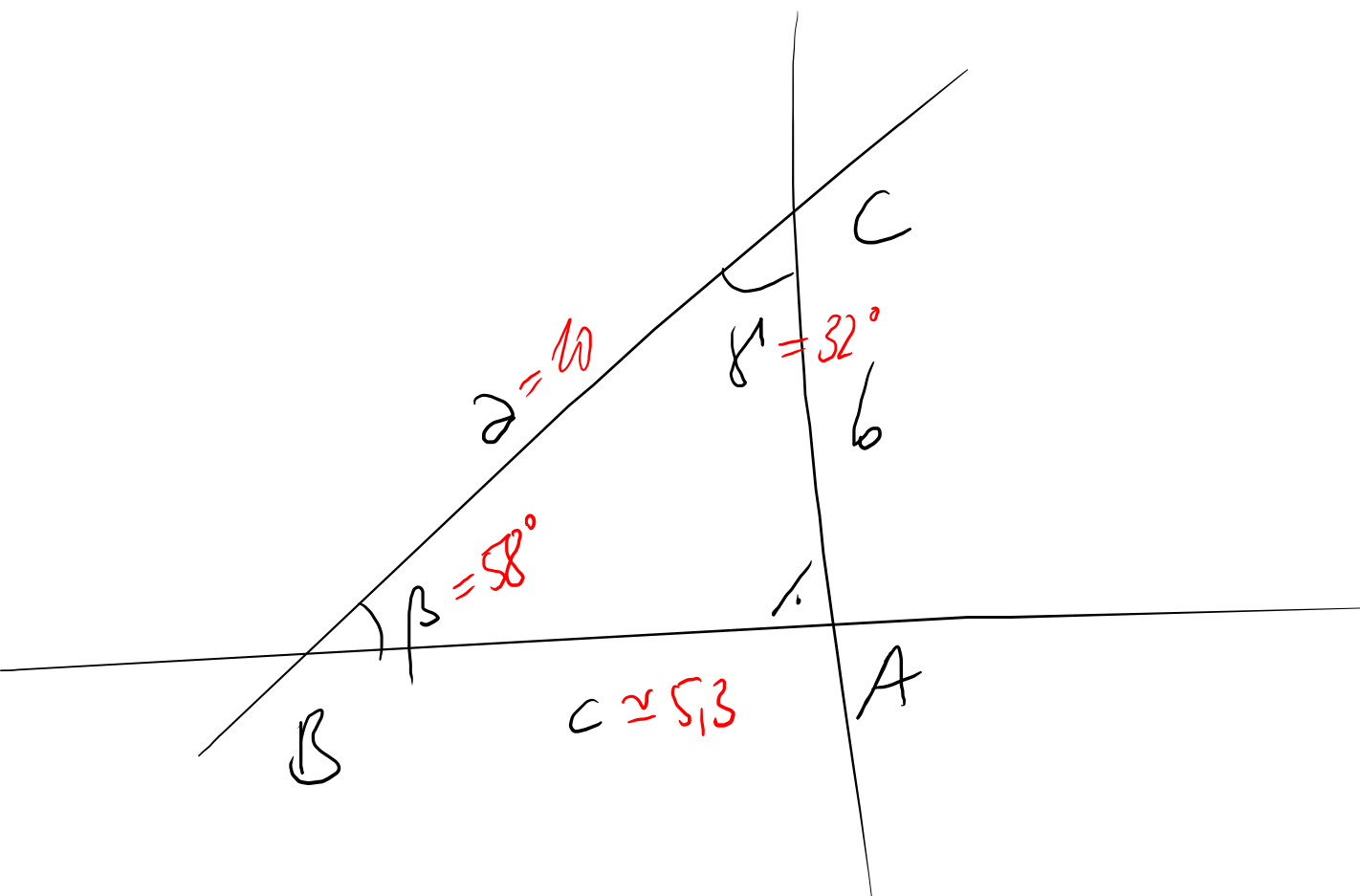
$$\cos 32^\circ = \frac{b}{10}$$

$$b = 10 \cos 32^\circ$$



$$\cos 27^\circ = \frac{3}{a}$$

$$\Leftrightarrow a = \frac{3}{\cos 27^\circ}$$



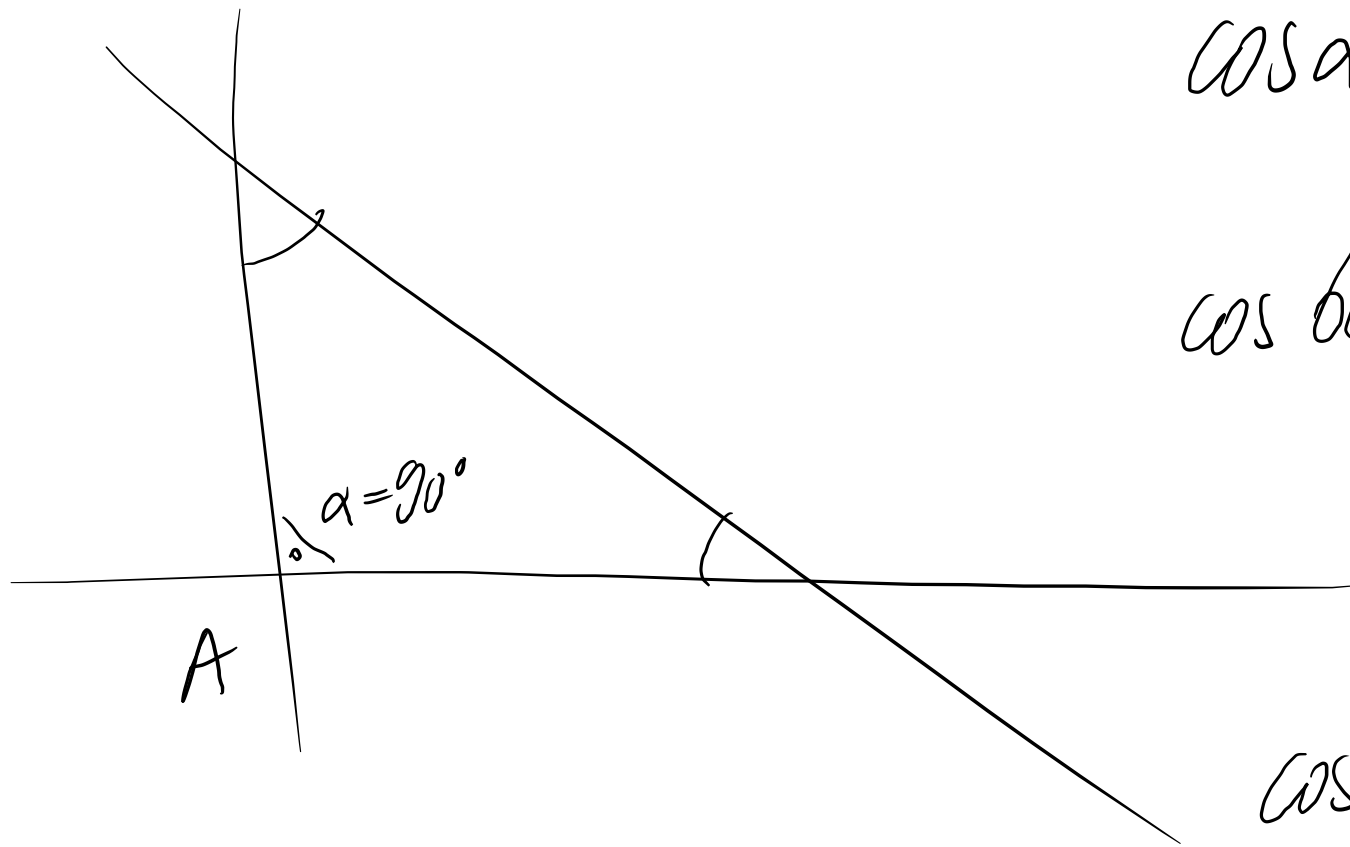
$$\sin \alpha = \frac{c}{a}$$

$$\sin 32^\circ = \frac{c}{10} \Leftrightarrow c = 10 \sin 32^\circ \approx 5.3$$

$$\tan \alpha = \frac{c}{b}$$

$$\sin \beta = \frac{b}{a}$$

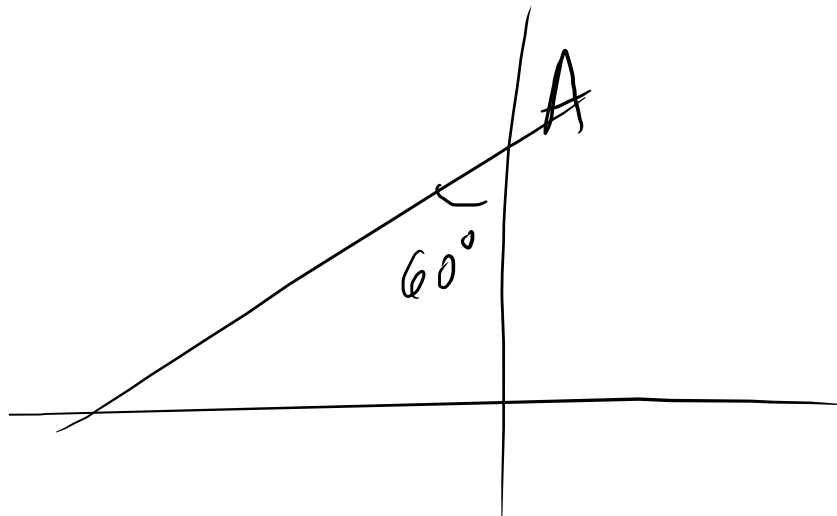
$$\sin 58^\circ = \frac{b}{10} \Leftrightarrow b = 10 \cdot \sin 58^\circ$$

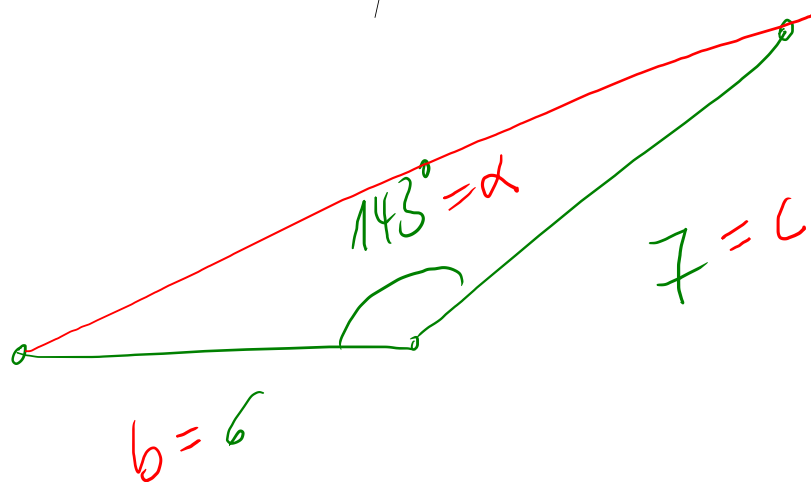
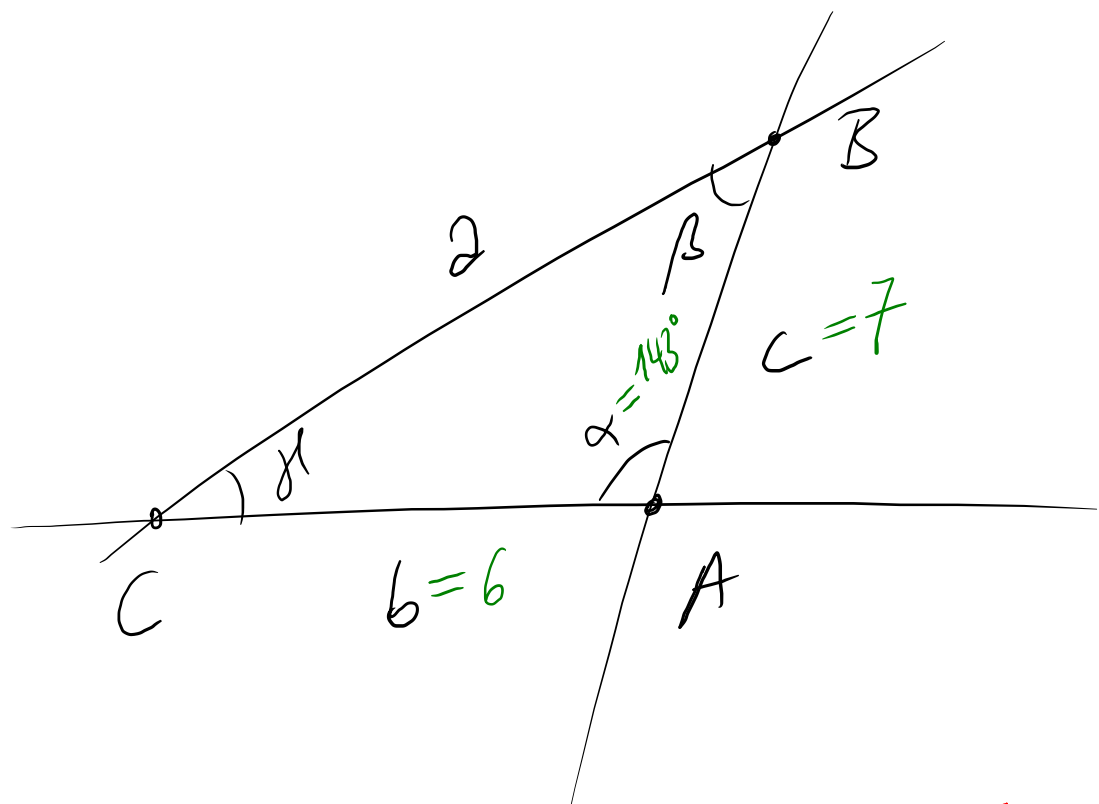


$$\cos \alpha = \cos 90^\circ = 0$$

$$\cos 60^\circ = 0,5$$

$$\cos 120^\circ = -0,5$$





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

$$a^2 + 2bc \cos \alpha = b^2 + c^2$$

$$a^2 = 6^2 + 7^2 - 2 \cdot 6 \cdot 7 \cdot \cos 143^\circ$$

$$= 36 + 49$$

$$= 85 - 84 \cdot \underbrace{\cos 143^\circ}_{-0,7986}$$

$$= 85 - 84 \cdot (-0,7986)$$

$$= 85 + 84 \cdot 0,7986$$

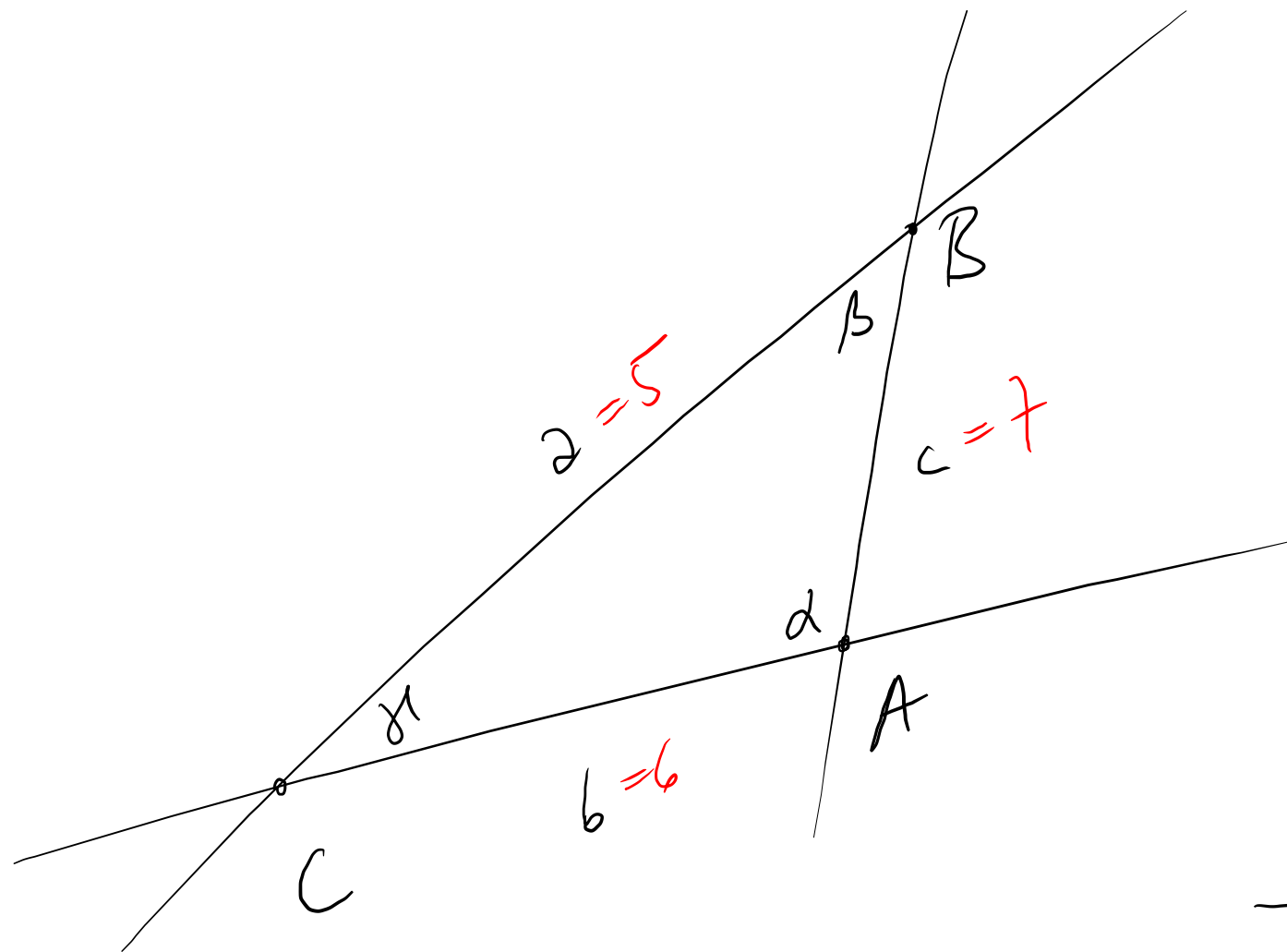
$$a^2 = b^2 + c^2 - 2bc \cos \alpha$$



negative / positive

$$a^2 = 6^2 + 7^2 - 2 \cdot 6 \cdot 7 \cdot \cos 143^\circ$$

$$x - y = x + (-y)$$

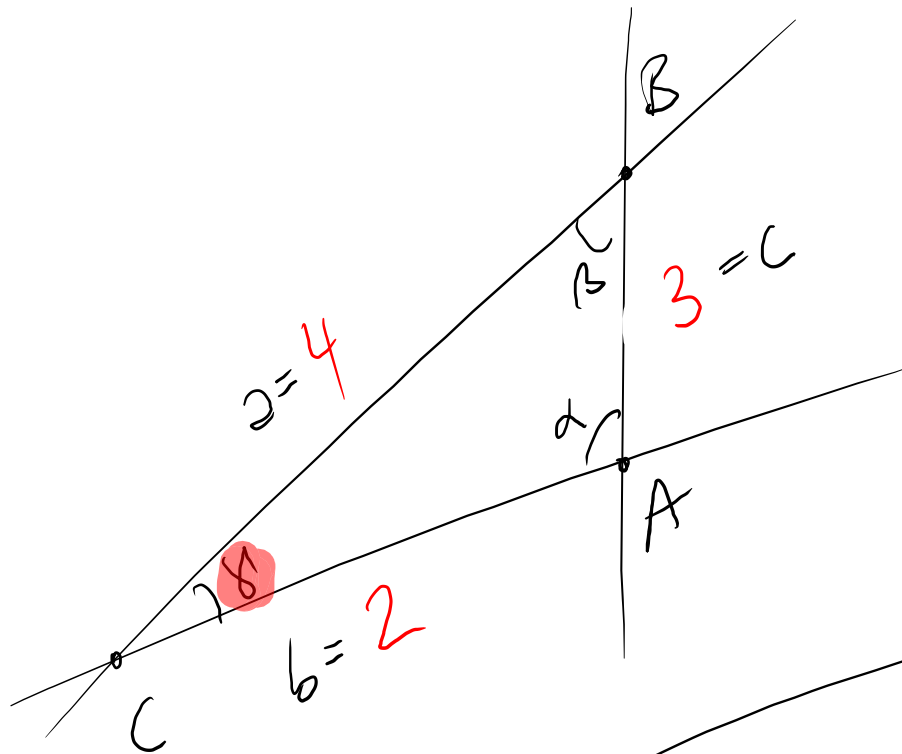


$$a^2 = b^2 + c^2 - 2bc \cos \alpha$$

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

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

$$\frac{a}{\sin \alpha} = \frac{b}{\sin \beta} = \frac{c}{\sin \gamma}$$



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

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

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

$$3^2 = 4^2 + 2^2 - 2 \cdot 4 \cdot 2 \cdot \cos \gamma$$

$$9 = 20 - 16 \cos \gamma$$

$$16 \cos \gamma = 11$$

$$\cos \gamma = \frac{11}{16} = 0,6875$$

$$\Rightarrow \gamma = \arccos(0,6875)$$

$$\Rightarrow \gamma \approx 46,6^\circ$$