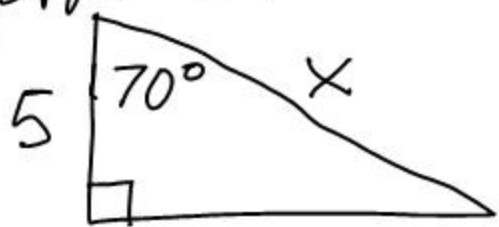


Triangle Trigonometry

Geometry

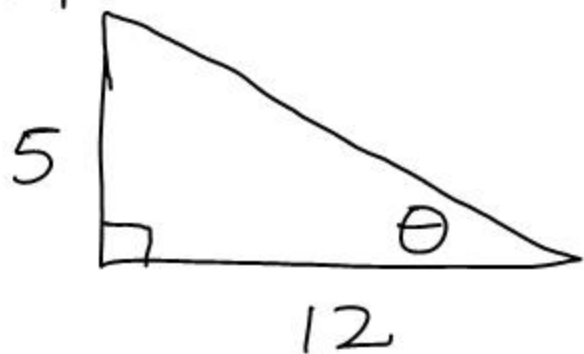
* prob # 1



$$\cos 70^\circ = \frac{5}{x}$$

$$x = \frac{5}{\cos 70^\circ}$$

* prob # 2



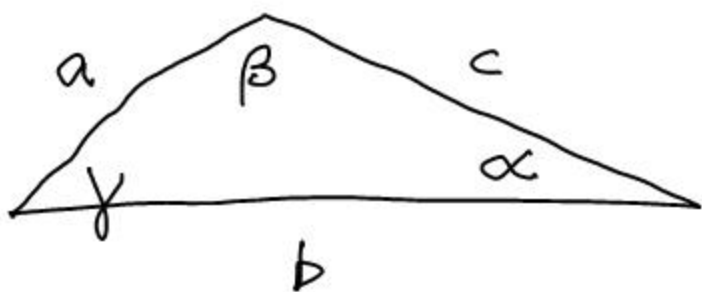
$$\tan \theta = \frac{5}{12}$$

$$\theta = \tan^{-1} \left(\frac{5}{12} \right)$$

Oblique Triangle Trigonometry

- * (1) The Sine Rule (The Law of Sines)
- (2) The Cosine Rule (The Law of Cosines)

The Sine Rule



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

AAS problem

#3 $\alpha = 26^\circ$, $\gamma = 55^\circ$, $c = 10$

Find a.

α, β, c

~~$$\frac{\sin 26^\circ}{a} = \frac{\sin 55^\circ}{10}$$~~

$$a \cdot \sin 55^\circ = 10 \cdot \sin 26^\circ$$
$$a = \frac{10 \cdot \sin 26^\circ}{\sin 55^\circ} \approx 5.4$$

ASA problem

#6. $\beta = 115^\circ$, $\gamma = 48^\circ$ $a = 9$

Find b

$\alpha = 17^\circ$

$$\frac{\sin 115^\circ}{b} = \frac{\sin 17^\circ}{9}$$

$$\frac{b \cdot \cancel{\sin 17^\circ}}{\cancel{\sin 17^\circ}} = \frac{9 \cdot \sin 115^\circ}{\sin 17^\circ} = \underline{\underline{27.9}}$$
