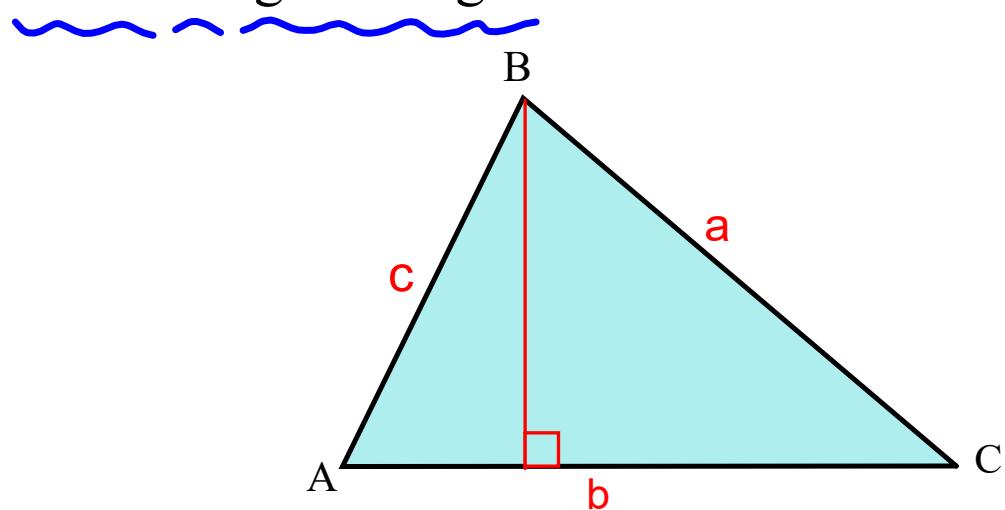


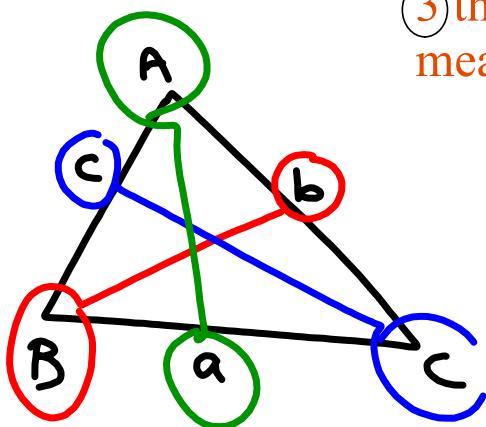
Trigonometry

Part 2: For non-right triangles



We can use: **Law of Sines**

Law of Sines -- Given ① the measure of an angle, ② the length of the side *opposite* that angle and ③ the length of another side or the measure of another angle.



Law of Sines

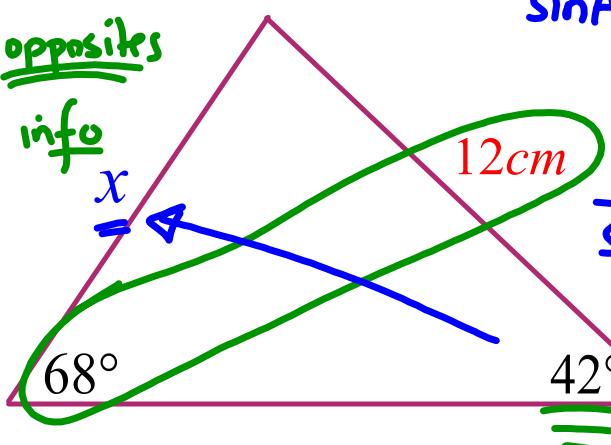
$$\frac{a}{\sin A} = \frac{b}{\sin B} = \frac{c}{\sin C}$$

Note: When doing calculations, only two ratios get used.

a, *b* and *c* are sides, and *A*, *B* and *C* are the angles *opposite* those sides.

Example 1

- ① Look for opposites
 ② one other info



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

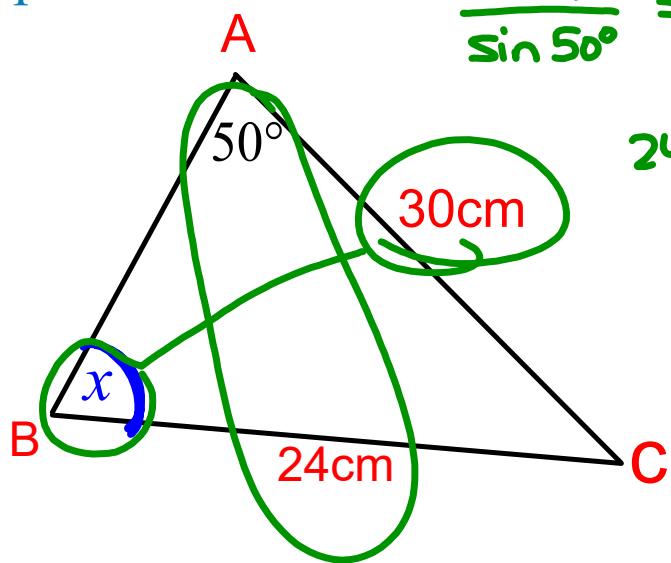
$$\frac{12}{\sin 68^\circ} = \frac{x}{\sin 42^\circ}$$

$$12 \cdot \sin 42^\circ = x \sin 68^\circ$$

$$\frac{12 \cdot \sin 42^\circ}{\sin 68^\circ} = x$$

$$\underline{\underline{8.66 \text{ cm} = x}}$$

Example 2



$$\frac{24}{\sin 50^\circ} = \frac{30}{\sin B}$$

$$24 \cdot \sin B = 30 \sin 50^\circ$$

$$\sin B = \frac{30 \sin 50^\circ}{24}$$

$$\sin B = 0.95756$$

$$\angle B = \sin^{-1}(0.95756) \\ = 73.25^\circ$$