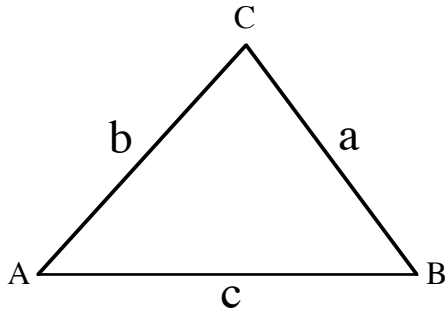


COSINE RULE

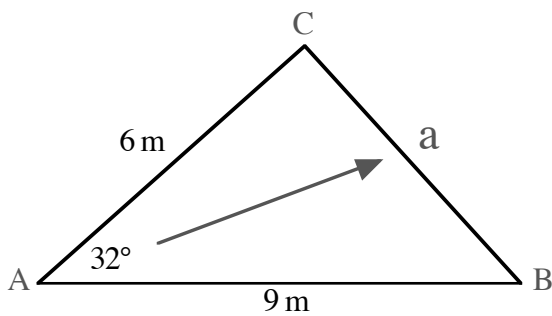


$$a^2 = b^2 + c^2 - 2bc \cos A$$

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

FINDING AN UNKNOWN SIDE

NOTE: requires knowing 2 sides and the angle between them.



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

$$= 6^2 + 9^2 - 2 \times 6 \times 9 \times \cos 32^\circ$$

$$a^2 = 25.410\dots$$

$$a = \sqrt{25.410\dots}$$

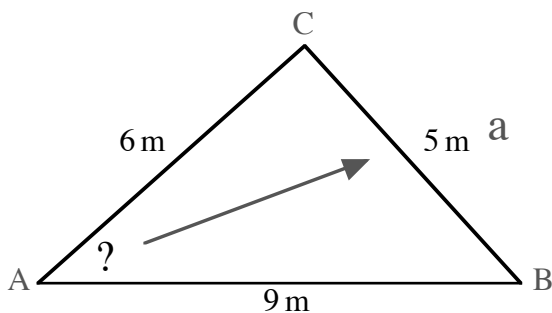
$$= 5.040\dots$$

$$BC \approx 5.0 \text{ m}$$

Find the length of side BC.

FINDING AN UNKNOWN ANGLE

NOTE: requires knowing all 3 sides.



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

$$= \frac{6^2 + 9^2 - 5^2}{2 \times 6 \times 9}$$

$$\cos A = 0.85185\dots$$

$$A = \cos^{-1}(0.85185\dots)$$

$$= 31.586\dots$$

$$\angle BAC \approx 31.6^\circ$$

Find the size of angle BAC.