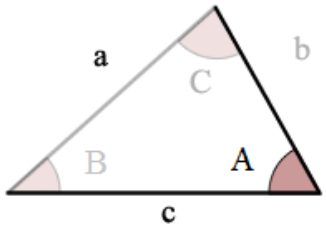
Answer on Question #53921 – Math – Geometry

Question:

Solve the triangle.

A = 51°, b = 11, c = 7

Answer:



Law of cosines:

$$a^2 = b^2 + c^2 - 2cb * cosA$$

where A denotes the angle contained between sides of lengths *a* and *b* and opposite the side of length *c*.

From cosine law we get:

$$a^2 = 11^2 + 7^2 - 2 * 11 * 7 * cos51^\circ \approx 73$$

then **a = 8.55**

Law of sines:

$$\frac{a}{sinA} = \frac{b}{sinB} = \frac{c}{sinC}$$

where a, b, and c are the lengths of the sides of a triangle, and A, B, and C are the opposite angles.

From sine law we get:

$$\frac{8.55}{sin51} = \frac{11}{sinB} = \frac{7}{sinC}$$

then

B = 89.5° and **C = 39.5°**