

Chapter 8: Right Triangles & Trigonometry

SECTION 5 PART 2: LAW OF COSINES

Megan Frantz

Okemos High School

Math Instructor

I Can

- Use the Law of Cosines to solve triangles

Law of Cosines

The Law of Sines cannot be used to solve every triangle.

If you know two side lengths and the included angle measure or if you know all three side lengths, you cannot use the Law of Sines.

Instead, you can apply the Law of Cosines.

Law of Cosines

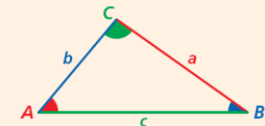
Theorem 8-5-2 The Law of Cosines

For any $\triangle ABC$ with side lengths a , b , and c :

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

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

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

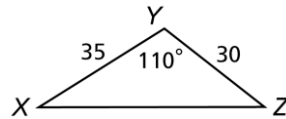


You can use the Law of Cosines to solve a triangle if you are given

- two side lengths and the included angle measure (SAS)
- three side lengths (SSS).

Example

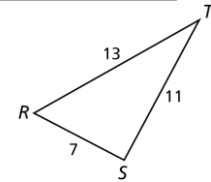
Find the measure. Round lengths to the nearest tenth and angle measures to the nearest degree.



XZ

Example

Find the measure. Round lengths to the nearest tenth and angle measures to the nearest degree.



$m\angle T$

I Can

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