

Chapter 8: Right Triangles & Trigonometry

SECTION 5 PART 1: LAW OF SINES

Megan Frantz

Okemos High School

Math Instructor

I Can

- Use the Law of Sines to solve triangles

Not only Right Triangles!

Up to this point, we have only solved right triangles. Today you will learn to solve *any* triangle.

We will need to calculate trigonometric ratios for angle measures up to 180° (as opposed to up to 90°).

We can use a calculator to find these values.

Calculator Practice

Use your calculator to find each trigonometric ratio. Round to the nearest hundredth.

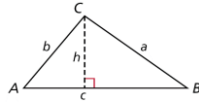
A. $\tan 103^\circ$

B. $\cos 165^\circ$

C. $\sin 93^\circ$

Law of Sines

In $\triangle ABC$, let h represent the length of the altitude from C to \overline{AB} .

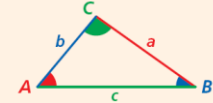


Law of Sines

Theorem 8-5-1 The Law of Sines

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

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

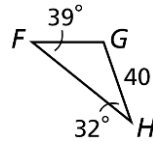


- You can use the Law of Sines to solve a triangle if you are given
- two angle measures and any side length (ASA or AAS) or
 - two side lengths and a non-included angle measure (SSA).

Example

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

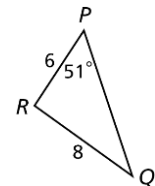
FG



Example

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

$m\angle Q$



I Can

- Use the Law of Sines to solve triangles