Law of Sines

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5 April 2024

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Announcements

1. Exam corrections due next Wednesday.
2. Homework in M.O.M.
3. Office hours today, 10am - 11am.

A few more advanced trig equation techniques

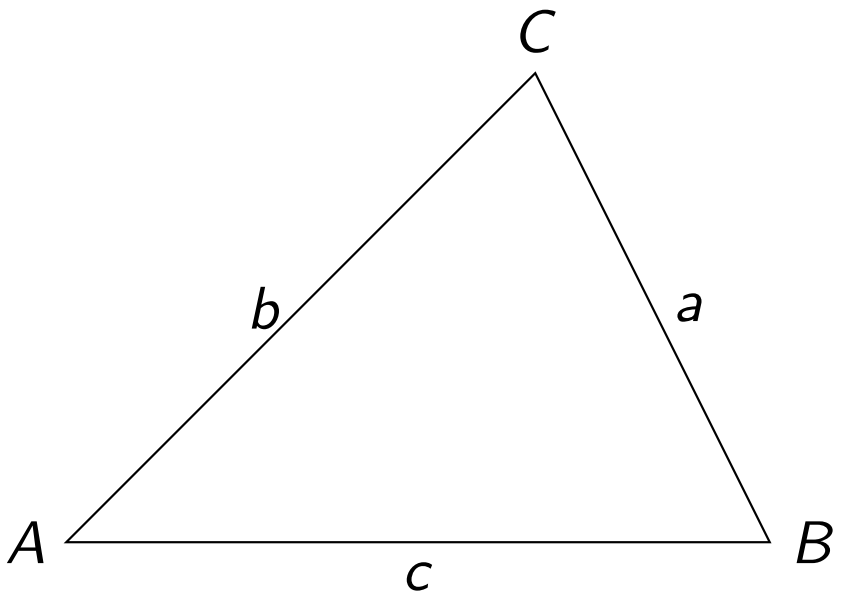
Let's illustrate a few more "advanced" techniques for trig equations with the following examples on the interval $0 \leq \theta < 2\pi$:

1. $2\sin^2(\theta) + \cos(\theta) = 2$
2. $2\sin(3\theta) = 1$

Example

Law of Sines

Let's look at a general _____ and see what we can say about it using right angle trigonometry. We want to _____ this oblique triangle, which means finding all 3 _____ and all 3 _____.



Law of Sines

We've just developed the Law of Sines!

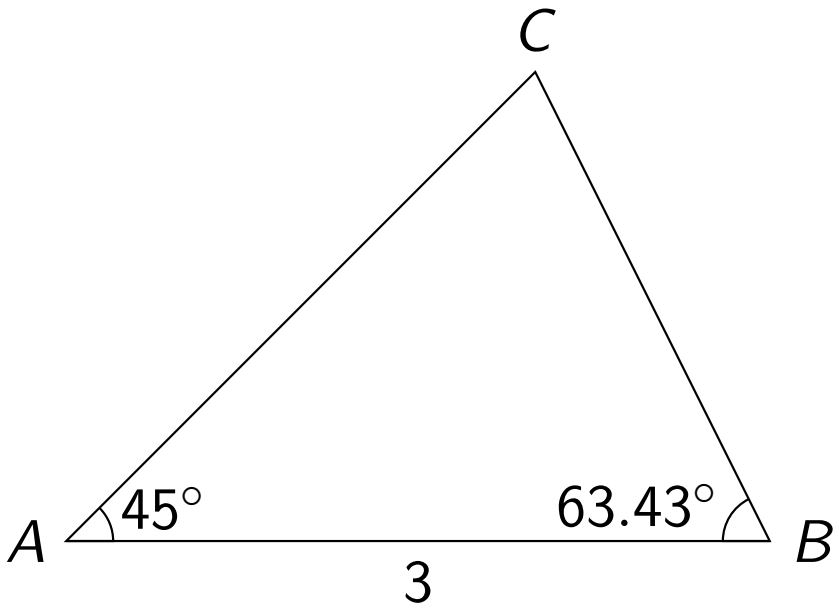
Theorem (Law of Sines)

In any triangle with angles A, B, C and corresponding side lengths a, b, c, we will always have:

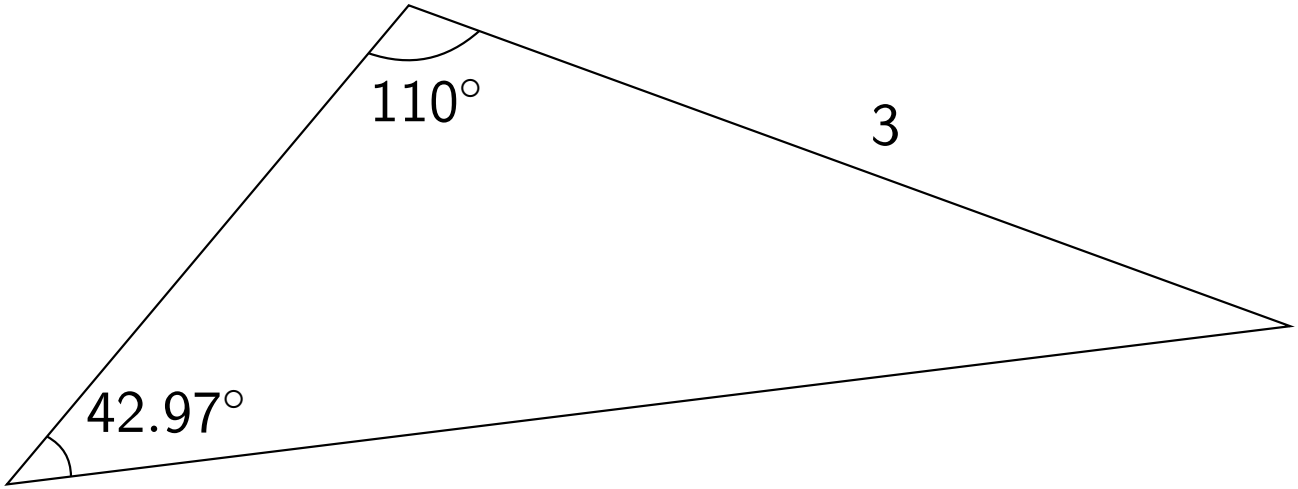
$$\frac{\sin(A)}{a} = \frac{\sin(B)}{b} = \frac{\sin(C)}{c}$$

Let's look at a few particular examples of how to use this!

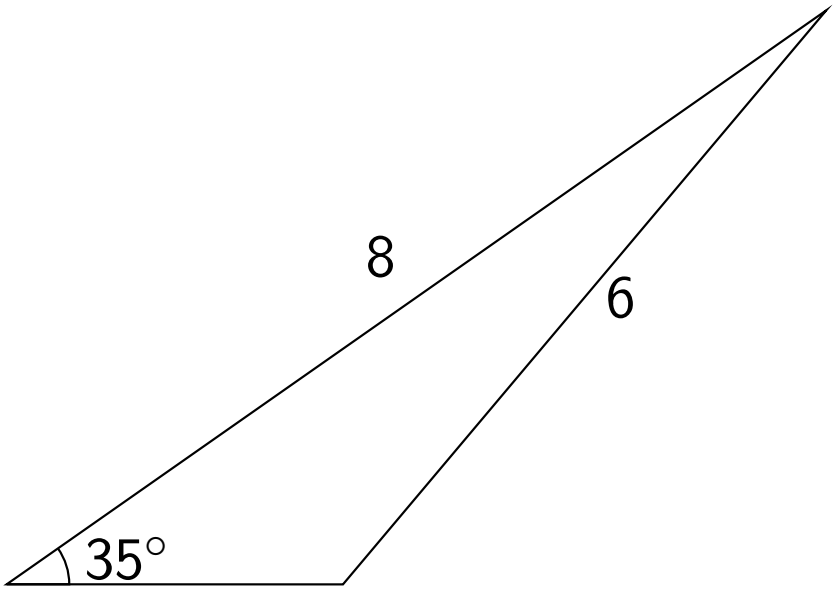
ASA



AAS

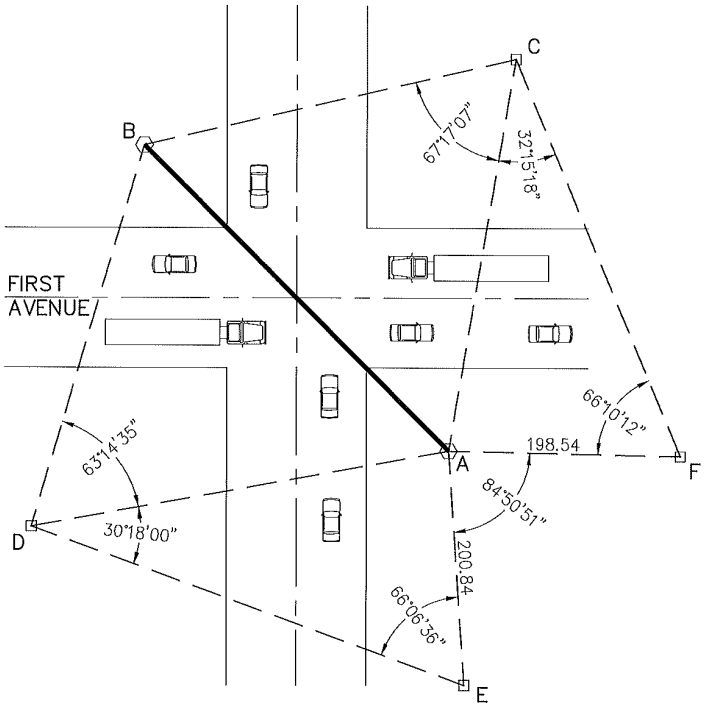


SSA



Examples

A LOCAL TRAFFIC ENGINEERING DEPARTMENT HAS DETERMINED THE NEED FOR AN OVERHEAD SIGNAL LIGHT SYSTEM AT A VERY BUSY INTERSECTION. THE SUPPORT POLES NEED TO BE PLACED AT POINTS A AND B. DUE TO HEAVY TRAFFIC VOLUME, THE FIELD MEASUREMENTS BY THE SURVEY CREW WERE LIMITED TO THE FOLLOWING SKETCH:



FIND:

DISTANCE AC = _____ (6 POINTS)

DISTANCE AD = _____ (6 POINTS)

DISTANCE DC = _____ (6 POINTS)

DISTANCE BC = _____ (6 POINTS)

DISTANCE AB = _____ (6 POINTS)

REQUIRED ANSWER FORMAT
DISTANCES: NEAREST HUNDREDTH