Algebra 2
Unit: Trigonometric Functions
Section: Inverse Trigonometric Values

Tutorial: Finding Angles Given Trigonometric Ratios

Slide 1

Thus far you have learned about the following trigonometric functions. Sine. Cosine. Tangent. Cosecant. Secant. Cotangent.

In this tutorial you will learn about the inverse trigonometric function. Inverse sine. Inverse cosine. Inverse tangent.

These functions will be used to find the angles of right triangles.

Slide 2

Steps to finding angle A.
Look at the following diagram. The diagram shows a right triangle with side lengths 8 and 3. The 3 is opposite acute angle A and the 8 is adjacent to acute angle B. How would you find angle A?

Step 1. Make sure your calculator is in degree mode. You have two modes on your calculator, degree and radian. Make sure to always check you are on the right mode depending on what the question is asking.

Step 2. Set up the correct trigonometric ratio depending on the information given.

Step 3. Solve for angle A using inverse trigonometric ratios.

Slide 3

Solve for angle A in degrees. Set up the equation using the tangent function since you are given the opposite and adjacent sides to Angle A. This will change depending on what information you are given.

Tangent of A is equal to three divided by eight.

Now use the inverse tangent function to find A.
A is equal to the inverse tangent of three over eight. Using the calculator and making sure it is set on degrees, angle A is approximately twenty point five six degrees.

Slide 4

Now it's your turn. Solve each of the following problems for the unknown angle. Click on solution to check your work.

1. Given sin A = 0.25 solve for A in radians.

Solution

.25 radians

2. Given cos B = 0.67 solve for B in degrees.

Solution

47.93°

3. Solve for angle A in degrees. The right triangle has acute angle A, with side opposite equal to 5 and hypotenuse equal to 7.

Solution

45.58°

Slide 5

Work through the following steps when solving for angles in a right triangle:
Step 1. Make sure your calculator is in the correct mode.
Step 2. Set up the correct trigonometric ratio depending on the information given.
Step 3. Solve for angle A using inverse trigonometric ratios.