**3.4: The Sine and Cosine Rules**

The sine and cosine rules allow us to find unknown sides and angles in triangles that are **not** right-angled.

**The Sine Rule**

* 2 angles and 1 side
* 2 sides and a **non**-included angle





Ex)

Ex) A rectangular block of wood with face ABCD leans against a vertical wall, as shown in the diagram below. AB = 8 cm , BC = 5 cm and angle $B\hat{A}E=28°$.



Find the vertical height of C above the ground.

The Cosine Rule

* 3 sides
* 2 sides and an **included** angle



Ex) Observers on the ground at points A and B, 30 km apart, sight an airplane at angles of elevation of 40° and 76°, respectively. Find the altitude of the plane.

**Area of a Triangle:**

1. The following diagram shows a triangle ABC.

Calculate the area of triangle ABC.