



## Deriving Triangle Area Formula

### Today's Standard

HSG.SRT.D9 - (+) Derive the formula  $A = \frac{1}{2} ab \sin(C)$  for the area of a triangle by drawing an auxiliary line from a vertex perpendicular to the opposite side.

### Real-World Applications for this Standard

Calculating land area in surveying; Designing triangular components in engineering; Determining areas in architectural plans; Analyzing forces in physics problems involving triangles

### Today I Learned

Today we learned how to find the area of a triangle using a special formula:  $A = \frac{1}{2} ab \sin(C)$ . We used a line to help us figure it out.

### Common Stumbling Blocks

Some students think this formula only works for right triangles, but it works for all triangles. Others mix up the sine function with other math functions.

### Quiz Me

- What shape did we learn about today?
- What is the special formula for finding the area of a triangle?
- What does the sine function help us find?
- Can we use this formula for all triangles?
- What line do we draw to help us find the area?

### Help Me

We can use the formula  $A = \frac{1}{2} ab \sin(C)$  to find the area of any triangle. This is useful in real life, like when measuring land or designing buildings.