

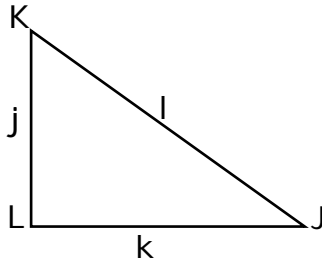
Name _____

Date _____

Proving the Formula $A = \frac{1}{2} ab \sin(C)$ - Step-by-Step Lesson

Acute triangle ABC, with a, b, c, being the respective opposite sides to angle A, angle B, angle C, and altitude, h, drawn from angle B to b.

Prove: The area of triangle ABC = $\frac{1}{2} kl \sin J$



Explanation:

We know that area of triangle = $\frac{1}{2}$ x base x height

Area triangle JKL = $\frac{1}{2} j k$

Base = k , height(h) = j

The formula of $\sin J = \frac{\text{Opposite}}{\text{hypotenuse}}$

$\sin J = \frac{j}{l}$

Height = j = $l \sin J$

So we prove the area of triangle JKL = $\frac{1}{2} k l \sin J$

(replace j to $l \sin J$)

