

Today's Learning Goal(s):

By the end of the class, I will be able to:

- a) solve triangle problems involving the sine and cosine laws.

5.5.1: Solving Problems Involving the Sine Law and the Cosine Law

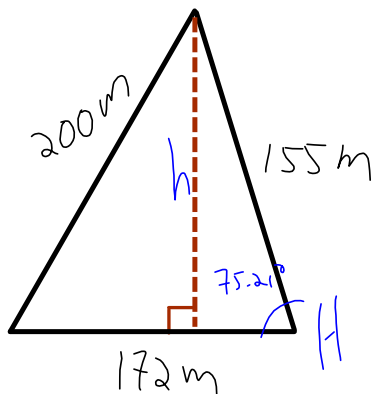
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Ex. 1 A triangular park has sides of length 200 m, 155 m, and 172 m.
Calculate the area of the park.

☞ Sketch a diagram.

☞ What formula do we need?

$$\text{☞ } A = \frac{bh}{2}$$



$$\cos H = \frac{172^2 + 155^2 - 200^2}{2(172)(155)}$$

$$H = \cos^{-1}\left(\frac{13609}{53320}\right)$$

$$\doteq 75.212$$

$$\doteq 75.21^\circ$$

$$A = \frac{172(149.865)}{2}$$

$$\doteq 12888.39$$

\therefore the area of the park is 12888.39 m^2

SOH

$$\sin 75.21^\circ = \frac{h}{155}$$

$$h = 155 \sin 75.21^\circ$$

$$\doteq 149.8645$$

$$\doteq 149.865$$