

What's Going On?

Checking In

Minds on

Proving the Cosine Law

Action!

The Cosine Law for Angles

Consolidation

Sketching it Out

Learning Goal - I will be able to use The Sine Law to solve problems and I will understand 'The Ambiguous Case'

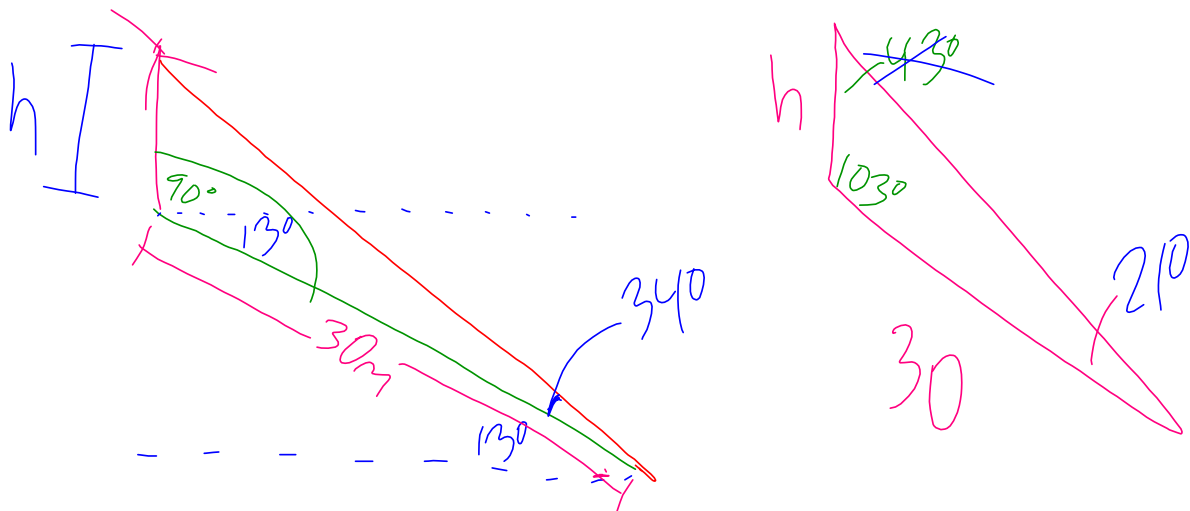
Checking In

F.F.M.

On your iPad, using sketchbook express, create a diagram for question 10 on page 319.

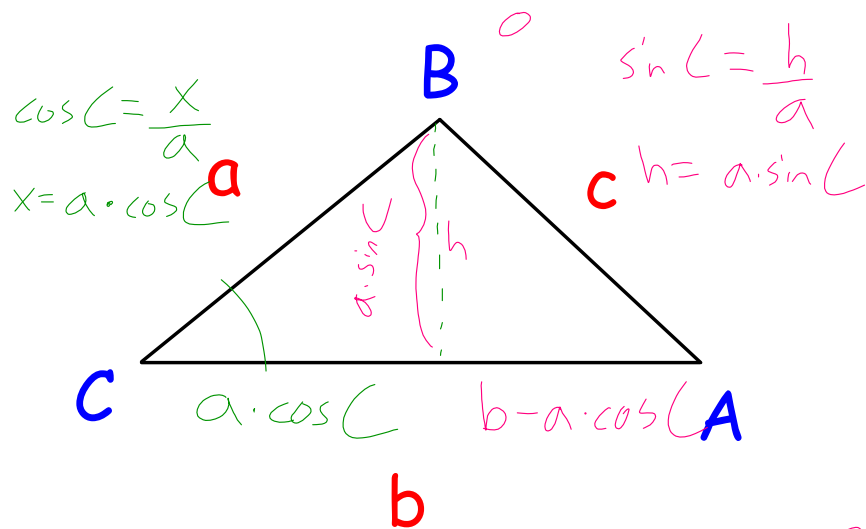
Upload it to the subfolder "F.F.M." in the MCR3U folder.

Name your file: 11.15.13 Name FFM



Minds on

Proving The Cosine Law



$$c^2 = (b - a \cdot \cos C)^2 + (a \cdot \sin C)^2$$

$$c^2 = (b - a \cos C)(b - a \cos C) + (a \sin C)^2$$

$$c^2 = \boxed{b^2} - ab \cos C - ab \cos C + a^2 \cos^2 C + a^2 \sin^2 C$$

$$c^2 = a^2 (\cos^2 C + \sin^2 C) + b^2 - 2ab \cdot \cos C$$

$$c^2 = a^2 (1) + b^2 - 2ab \cos C$$

by Pythagorean Identity

$$c^2 = a^2 + b^2 - 2ab \cdot \cos C$$

$$c^2 = a^2 + b^2 - 2ab \times \cos C$$

Action!

The Cosine Law for Angles

Rearrange to solve for angle C

$$c^2 = a^2 + b^2 - 2ab \times \cos C$$

$$-c^2 + 2ab \times \cos C = a^2 + b^2 - c^2$$

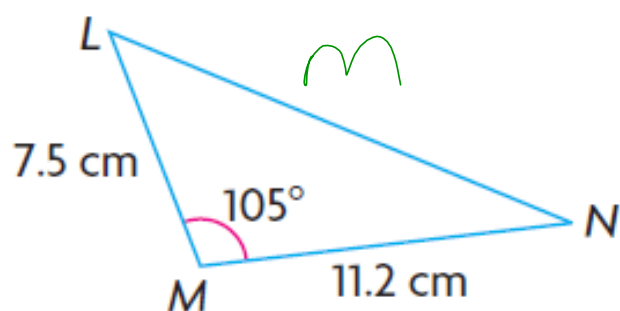
$$\frac{2ab \times \cos C}{2ab} = \frac{a^2 + b^2 - c^2}{2ab}$$

$$\cos C = \frac{a^2 + b^2 - c^2}{2ab}$$

$$C = \cos^{-1} \left(\frac{a^2 + b^2 - c^2}{2ab} \right)$$

Consolidation

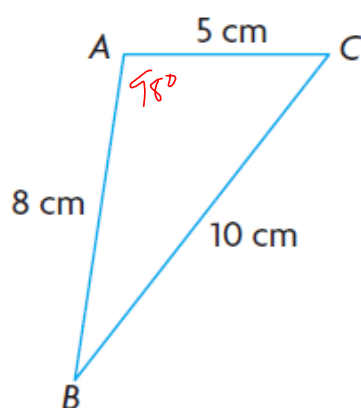
Using the Cosine Law



↳ two sides and a contained angle
(find the third side)

Consolidation

Using the Cosine Law



↳ or we can
use it when we have
all three sides.

Find angle A

Find angle B

Find angle C