Be prepared to work out a Sine Law Question tomorrow!

Sec. 2.4 : The Cosine Law

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

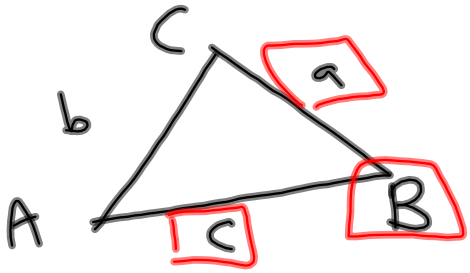
or

$a^2 = b^2 + c^2 - 2bc\cos A$

or

$b^2 = a^2 + c^2 - 2ac\cos B$

With cosine law, we have two sides and the angle between.



$b^2 = a^2 + c^2 - 2ac\cos B$

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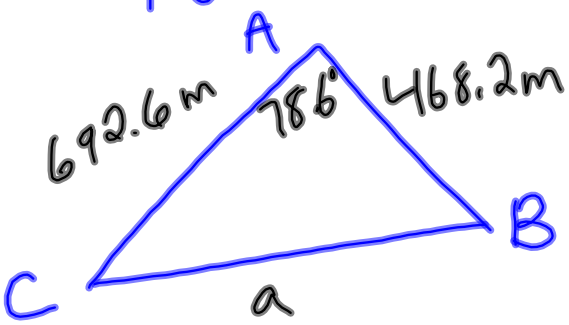


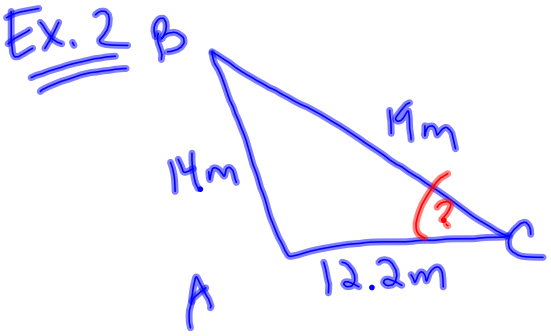
$$a^2 = b^2 + c^2 - 2bc\cos A$$

$$a^2 = (692.6)^2 + (468.2)^2 - 2(692.6)(468.2)\cos 78.6^\circ$$

$$a^2 = 570715.21$$

$$a = \sqrt{570715.21} \approx 755.5\text{ m}$$

Ex. 2



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

$(14)^2 = (19)^2 + (12.2)^2 - 2(19)(12.2)\cos C$

$196 = 361 + 148.84 - 463.6\cos C$

$196 = 509.84 - 463.6\cos C$ → * Do not subtract 463.6!

$196 - 509.84 = -463.6\cos C$

$-313.84 = -463.6\cos C$

$\frac{-313.84}{-463.6} = \frac{-463.6\cos C}{-463.6}$

$0.6770 = \cos C$

$\cos^{-1}(0.6770) \approx 47°$

Option2: Formulas will be given for the rearranged law for angles.

$\cos A = \frac{a^2 - b^2 - c^2}{-2bc}$ or $\frac{b^2 + c^2 - a^2}{2bc}$

Worksheet 2.4

1a) 2a) 3a) 4a) 5a)