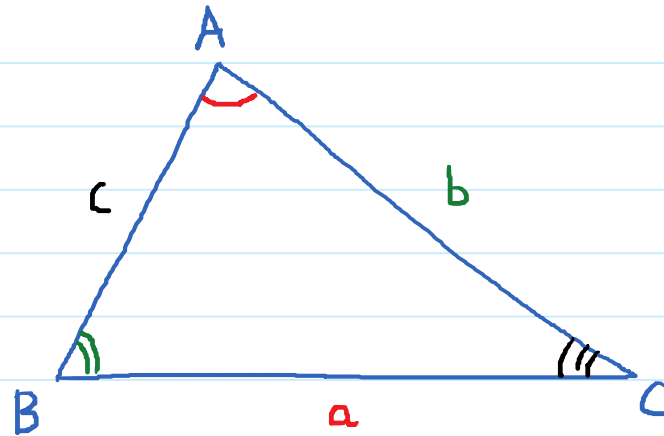


7.3. Law of Cosines

Monday, April 29, 2019 10:33 AM



Law of Cosines.

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

→ $\cos(A)$ by itself?

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

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

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

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

Important Variation:

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

$$\cos(B) = \frac{a^2 + c^2 - b^2}{2ac}$$

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

E.g1 **SSS triangle**

Solve the triangle ABC. Given: $a = 42.9$; $b = 37.6$,
and $c = 62.7$

E.g2: **SAS triangle**

Solve the triangle ABC. Given: $B = 42.3^\circ$;

$a = 12.9$; $c = 15.4$.

Done in class, on the board!