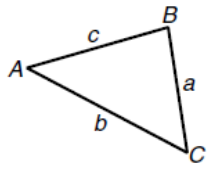
Unit 9 Fact Sheet

Topic #1: Law of Sines

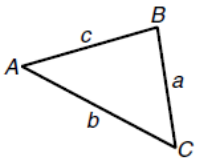
The Law of Sines	
For any $\triangle ABC$ with side lengths a, b, and c that are opposite angles A, B, and C, respectively, $\frac{\sin A}{a} = \frac{\sin B}{b} = \frac{\sin C}{c}$.	

*Be sure to find the smallest angle 1st!

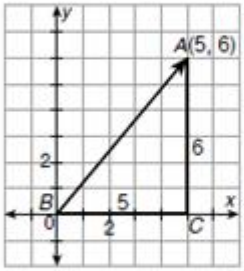
Heron's Formula (for finding area):

A = $\sqrt{s(s-a)(s-b)(s-c)}$

Topic #2: Law of Cosines

The Law of Cosines	
For any $\triangle ABC$ with side lengths a, b, and c that are opposite angles A, B, and C, respectively, $a^2 = b^2 + c^2 - 2bc\cos A$, $b^2 = a^2 + c^2 - 2ac\cos B$, $c^2 = a^2 + b^2 - 2ab\cos C$.	

Topic #3: Vectors

Component form	Magnitude	Direction
Component Form Lists the horizontal and vertical change from the initial point to the terminal point Initial point $P(2, 5)$ Terminal point $Q(8, 4)$	**Magnitude** The length of a vector, written as $\lvert\overrightarrow{AB}\rvert$ or $\lvert\vec{v}\rvert$ Use the distance formula to find the magnitude of a vector. $d = \sqrt{(x_2 - x_1)^2 + (y_2 - y_1)^2}$	**Direction** The direction of a vector is measured in degrees.  $\tan B = \frac{6}{5}$ $m\angle B = \tan^{-1}\left(\frac{6}{5}\right) \approx 50°$