

**Secondary Math III  
Unit 7 Formula Sheet**

**LAW OF SINES:**

$$\frac{a}{\sin A} = \frac{b}{\sin B} = \frac{c}{\sin C} \qquad \frac{\sin A}{a} = \frac{\sin B}{b} = \frac{\sin C}{c}$$

**LAW OF COSINES:**

$$\begin{aligned} a^2 &= b^2 + c^2 - 2bc \cos A & \cos A &= \frac{b^2 + c^2 - a^2}{2bc} \\ b^2 &= a^2 + c^2 - 2ac \cos B & \cos B &= \frac{a^2 + c^2 - b^2}{2ac} \\ c^2 &= a^2 + b^2 - 2ab \cos C & \cos C &= \frac{a^2 + b^2 - c^2}{2ab} \end{aligned}$$

**AREA OF TRIANGLE:**

$$\text{area} = \frac{1}{2} ab \sin C = \frac{1}{2} bc \sin A = \frac{1}{2} ac \sin B$$

$$\text{area} = \sqrt{s(s-a)(s-b)(s-c)} \text{ where } s = \frac{a+b+c}{2}$$

**Secondary Math III  
Unit 9 Formula Sheet**

**LAW OF SINES:**

$$\frac{a}{\sin A} = \frac{b}{\sin B} = \frac{c}{\sin C} \qquad \frac{\sin A}{a} = \frac{\sin B}{b} = \frac{\sin C}{c}$$

**LAW OF COSINES:**

$$\begin{aligned} a^2 &= b^2 + c^2 - 2bc \cos A & \cos A &= \frac{b^2 + c^2 - a^2}{2bc} \\ b^2 &= a^2 + c^2 - 2ac \cos B & \cos B &= \frac{a^2 + c^2 - b^2}{2ac} \\ c^2 &= a^2 + b^2 - 2ab \cos C & \cos C &= \frac{a^2 + b^2 - c^2}{2ab} \end{aligned}$$

**AREA OF TRIANGLE:**

$$\text{area} = \frac{1}{2} ab \sin C = \frac{1}{2} bc \sin A = \frac{1}{2} ac \sin B$$

$$\text{area} = \sqrt{s(s-a)(s-b)(s-c)} \text{ where } s = \frac{a+b+c}{2}$$

