

IB Math Studies 2 BELL WORK

**Grab a worksheet and complete
Investigation 2.**

Chapter 15

Trigonometry

- A** Labelling right angled triangles
- B** The trigonometric ratios
- C** Using trigonometry in geometric figures
- D** Problem solving using trigonometry
- E** 3-dimensional problem solving
- F** Areas of triangles
- G** The cosine rule
- H** The sine rule
- I** Using the sine and cosine rules
- J** The ambiguous case (Extension)

Syllabus reference: 5.2, 5.3, 5.4

We know that $\text{area} = \frac{1}{2} \text{base} \times \text{height}$.

** be sure the base and the height are perpendicular **

... but what if the base or height of the triangle aren't known?

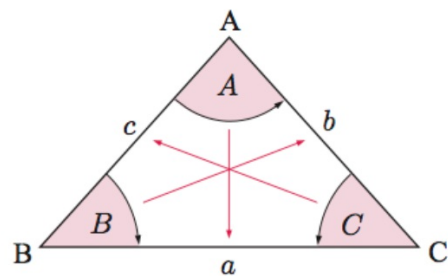
THE AREA OF A TRIANGLE FORMULA

$$A = \frac{1}{2}ab \sin C.$$

$$\frac{1}{2}ac \sin B$$

$$\frac{1}{2}cb \sin A$$

Use this formula to find the area of a triangle when you are given the lengths of two sides and their included angle.

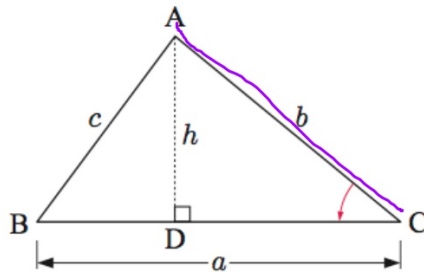


$$A = \frac{1}{2}ab \sin C.$$

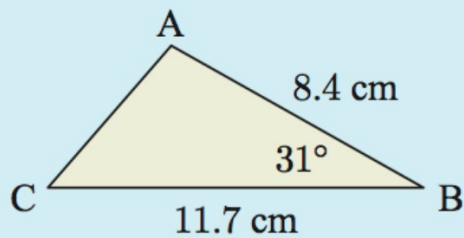
This is because the height of the triangle can be drawn into the figure and found using sine:

$$\sin C = \frac{h}{b}$$
$$\therefore h = b \sin C$$

$$A = a \cdot$$



Find the area of triangle ABC:



$$A = \frac{1}{2} (8.4)(11.7) \sin 31^\circ$$

$$A = 25.3 \text{ cm}^2$$

An important note about all that "opp-adj-hyp" "SOH CAH TOA" stuff...

IT ***ONLY*** WORKS WITH **RIGHT TRIANGLES!**

* If you don't have a right angle, there is no hypotenuse. Don't try to make one.