

Aim: How do we find the area of a triangle using sines?

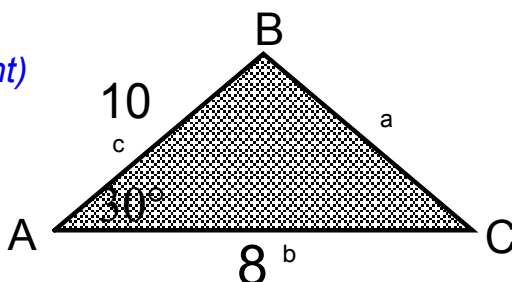
HW: pgs 563&563 #13,17,22

Regents Green Book pgs 1&2 # 5,6,7,8

Do Now: 1) In $\triangle ABC$, $A = 30^\circ$, $b = 8$ and $c = 10$.

Hint: Area = $1/2$ (base)(height)

Draw height BD



$$\text{Area of } \triangle ABC = \frac{1}{2} (bc \sin A)$$

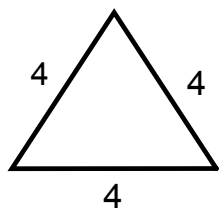
Area of the Triangle

$$K = \frac{1}{2} ab \sin C \quad K = \frac{1}{2} ac \sin B \quad K = \frac{1}{2} bc \sin A$$

Remember that this only works with a SAS triangle.

Reference Sheet $K = \frac{1}{2} ab \sin c$

2) Find the area of an equilateral triangle if the measure of one side is 4.

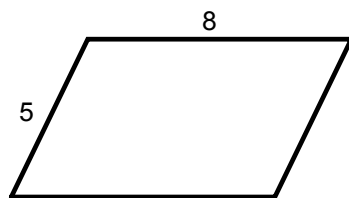
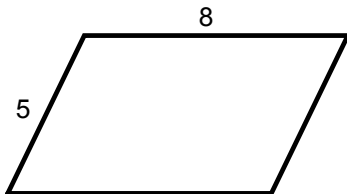


What do we know about this triangle?

What is the measure of each angle?

3) The area of a parallelogram is 20.
Find the measures of the angles of the parallelogram if the measures of two adjacent sides are 8 and 5.

What do we know about PARALLELOGRAMS?



Steps to find the Area of a Triangle using sine of an angle.

- 1. Draw the triangle and label.*
- 2. Plug into formula of area of a triangle $k = ab \sin C$ (remember it is a SAS triangle so label appropriately if different terms are used.)*
- 3. Calculate and state the answer in appropriate terms.*

Find the area of triangle ABC:

1. $a = 15, c = 12 \sin B = 3/5$

2. $a = 3\sqrt{2} b = 5$ and angle $c = 45$

3. In a rhombus PQRS the length of each side is 8 and Angle $PQR = 30$. The the area of the Rhombus.

