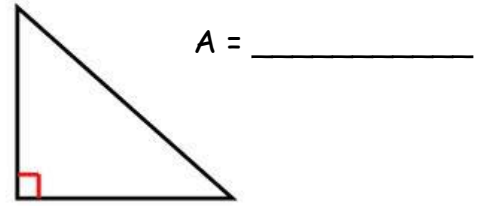
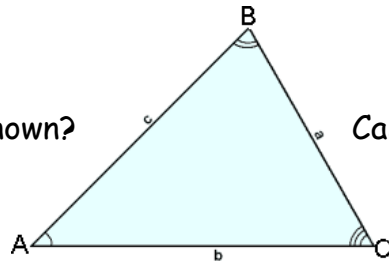


EQ:

Recall: How do you find the area of **right triangles**?



What if \_\_\_\_\_ is not known?



Can it be expressed using right triangle trig?

$\sin A =$

$h =$  \_\_\_\_\_

Now Substitute in the Area Formula:  $A =$  \_\_\_\_\_  $=$  \_\_\_\_\_

Used when you know a pair of \_\_\_\_\_ and the included \_\_\_\_\_ --- \_\_\_\_\_.

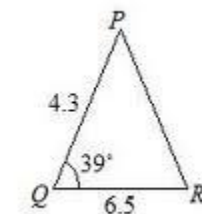
Formula for Area of **SAS** Triangles:

$A =$  \_\_\_\_\_

$A =$  \_\_\_\_\_

$A =$  \_\_\_\_\_

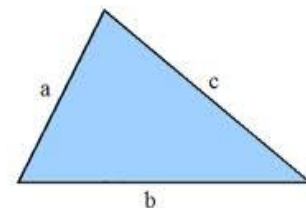
SAS =  $\frac{1}{2}$  \_\_\_\_\_ of 2 \_\_\_\_\_ and the



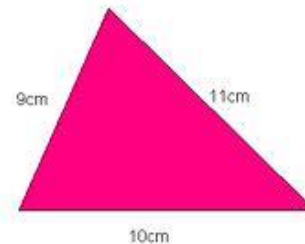
Ex. 1 Determine the area of the given triangle.

Formula for Area of SSS Triangles: "Heron's Formula"

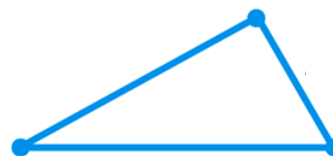
Area = \_\_\_\_\_ where  $s =$  \_\_\_\_\_



Ex. 2 Determine the area of the given triangle.

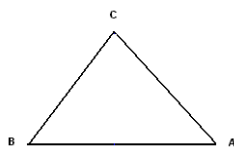


Ex. 3 The distance "as the crow flies" from Los Angeles to New York is 2451 miles, from New York to Montreal is 331 miles, and from Montreal to Los Angeles is 2427 miles. What is the area of the triangular region having these three cities as vertices? (Ignore the curvature of Earth.)

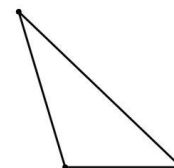


Examples. Find the area for each triangle.

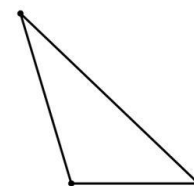
1.  $a = 8, b = 6, \gamma = 30^\circ$



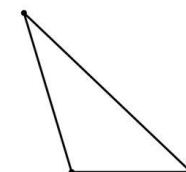
2.  $b = 5, c = 8, \alpha = 115^\circ$



3. A triangular lot has street frontage of 50', 60', and 80'. Find the area of the lot.

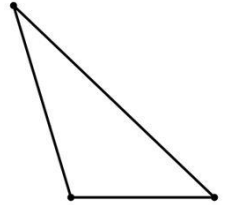


4. A triangular garden has sides of length 20 m, 30 m, and 30 m. Find the area of the garden.



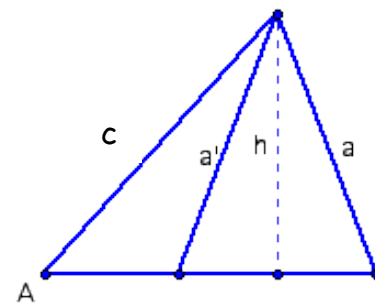
\*\*\* Special Case:

5.  $\beta = 100^\circ, \gamma = 65^\circ, a = 2.2$  \*\*\* Must work with \_\_\_\_\_ angles first.\*\*\*



What about the ambiguous case  $\Rightarrow$  \_\_\_\_\_? 2 \_\_\_\_\_  $\Rightarrow$  2 \_\_\_\_\_

6.  $a = 22, c = 30,$  and  $\alpha = 30^\circ$



❖ Assignment:

Practice Worksheet #1 Area of Triangles

Practice Worksheet #2 Area of Triangles

Practice Worksheet #1: Application Problems

Practice Worksheet #2: Application Problems