

Today's Learning Goal(s):

By the end of the class, I will be able to:

- a) use the Sine Law to solve a triangle that is the **ambiguous** case.

Last day's work: pp. 300-301 #6 – 9ace, 10, 12 [15]

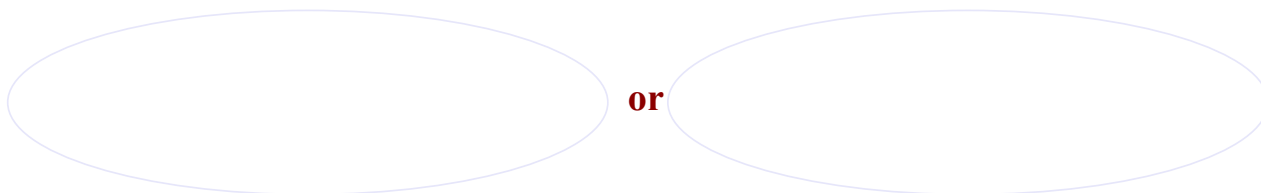
Review p. 304 #1 – 13

5.6 The Sine Law

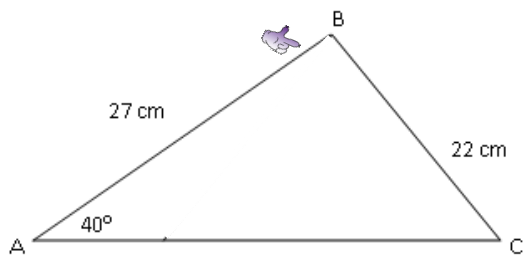
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Recall: We use the Sine Law when we are have an "opposite pair".

The formula:

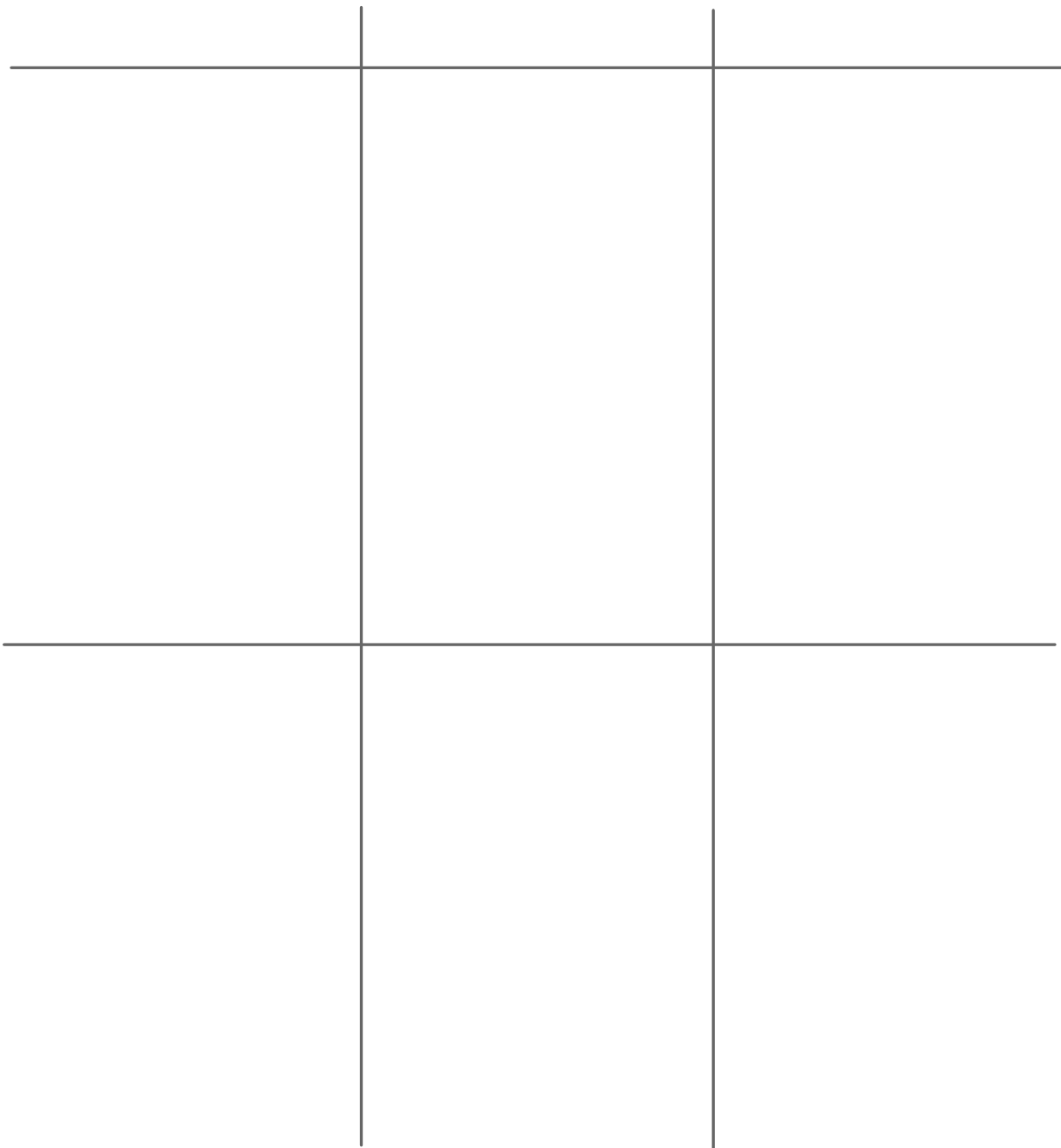
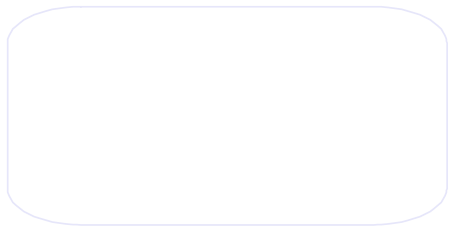


Ex. 1 Consider $\triangle ABC$, $\angle A = 40^\circ$, $AB = 27$ cm, and $BC = 22$ cm.

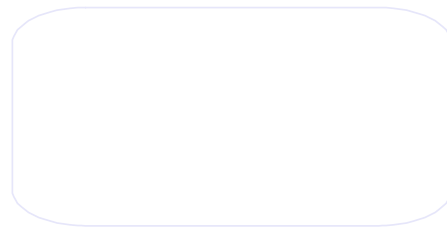
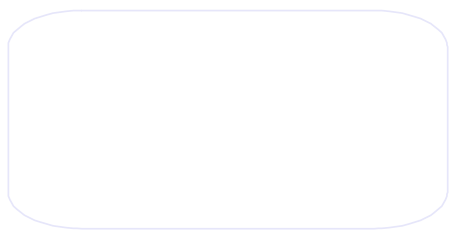


Note:

Ex. 2 Solve $\triangle ABC$, $\angle A = 44.3^\circ$, $a = 11.5$ cm, and $b = 7.7$ cm.



Ex. 3 Solve $\triangle ABC$, $\angle A = 144^\circ$, $a = 10.5$ cm, and $b = 12.5$ cm.



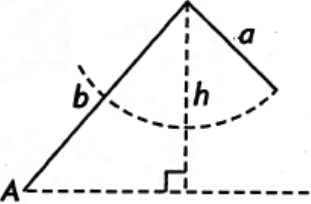
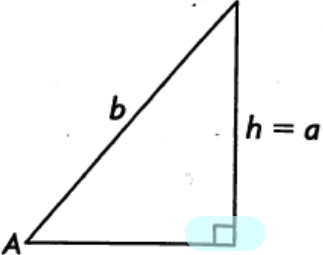
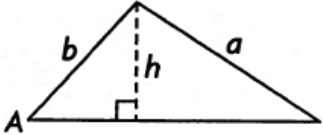
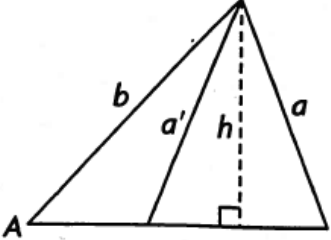
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**See Next Slide for
New Summaries**

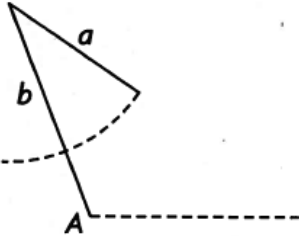
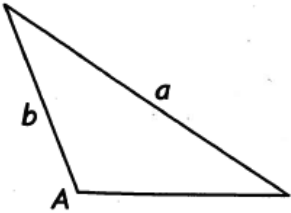
The ambiguous case arises in a SSA (side, side, angle) triangle. In this situation, depending on the size of the given angle and the lengths of the given sides, the sine law calculation may lead to 0, 1, or 2 solutions.

Need to Know

- In the ambiguous case, if $\angle A$, a , and b are given and $\angle A$ is acute, there are four cases to consider. In each case, the height of the triangle is $h = b \sin A$.

<p>If $\angle A$ is acute and $a < h$, no triangle exists.</p> 	<p>If $\angle A$ is acute and $a = h$, one right triangle exists.</p> 
<p>If $\angle A$ is acute and $a > b$, one triangle exists.</p> 	<p>If $\angle A$ is acute and $h < a < b$, two triangles exist.</p> 

If $\angle A$, a , and b are given and $\angle A$ is obtuse, there are two cases to consider.

<p>If $\angle A$ is obtuse and $a < b$ or $a = b$, no triangle exists.</p> 	<p>If $\angle A$ is obtuse and $a > b$, one triangle exists.</p> 
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Are there any Homework Questions you would like to see on the board?

Last day's work: pp. 300-301 #6 – 9ace, 10, 12 [15]

Review p. 304 #1 – 13

Today's Homework Practice includes:

pp. 318-319 #1, 2, 3a, 4, 5ac, 7 [15,17]