

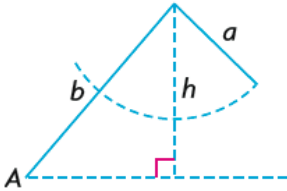
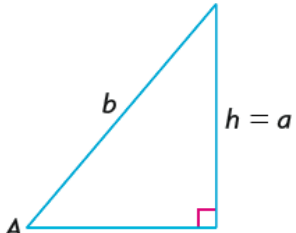
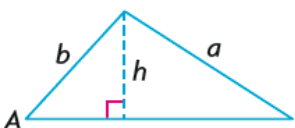
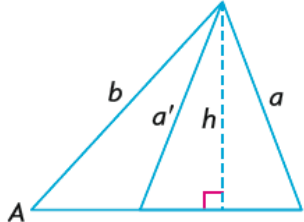
L6 – Ambiguous Case of Sine

MCR3U

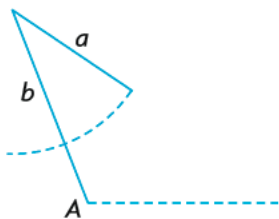
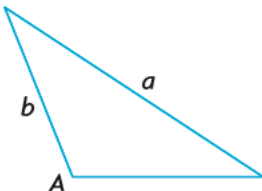
Jensen

If you are given _____ in a triangle, there are many scenarios to consider.

If $\angle A$, a , and b are given and $\angle A$ is acute, there are 4 scenarios to consider:

<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 2 scenarios 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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The ambiguous case only occurs when two possible triangles exist for the same given information. This means, the ambiguous case must be considered if _____.

Example 1: In triangle ABC, side $a = 12$ cm, side $b = 17$ cm, and $A = 21^\circ$. Find the measure of angle B.

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Example 2: In triangle ABC, side $a = 8$ cm, side $c = 10$ cm, and $A = 34^\circ$. Find angle C.

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Example 3: In triangle ABC, side $a = 14$ cm, side $b = 17$ cm, and $A = 54^\circ$. Find the measure of all missing sides and angles.

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