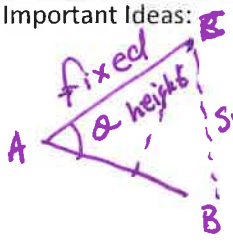
Name:

Section 5.1 Day 2—The Ambiguous Case (SSA)

Important Ideas:



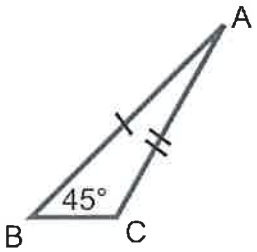
Given an angle θ and 2 sides:

θ is acute	θ is obtuse
• If swinging > fixed: 1 triangle possible	• If swinging > fixed: 1 triangle possible
• If swinging < height: no triangle possible ($\sin^{-1}$(# bigger than 1))	• If swinging ≤ fixed: no triangle possible
• If height < swinging < fixed: 2 triangles possible, calculator gives m∠B, 180 − B gives alternative	

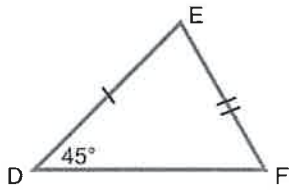
Check Your Understanding!

1. Students are asked to draw a triangle where one side length is 5.5, its opposite angle is 45° and another side length is 6.5.

Sasha's Answer



Ricardo's Answer



Explain using the Law of Sines why both Sasha's and Ricardo's answer could be correct.

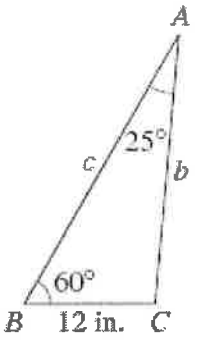
2. Indicate whether the given measurements result in no triangle, one triangle, or two triangles. Solve the resulting triangle or triangles. Round the answer to the nearest tenth.
   a) B = 22°, b = 16.8, a = 22.42

   b) A = 96°, a = 13, c = 24

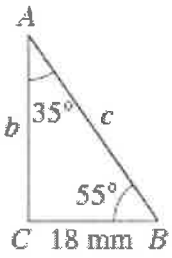
Law of Sines

Using the Law of Sines In Exercises 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, and 24, use the Law of Sines to solve the triangle.

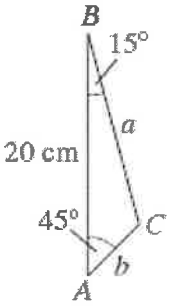
7.



8.



9.



13. $A = 36°, \quad a = 8, \quad b = 5$

14. $A = 76°, \quad a = 34, \quad b = 21$

15. $A = 35°, \quad B = 40°, \quad c = 10$

Using the Law of Sines In Exercises 25, 26, 27, 28, 29, and 30, use the Law of Sines to solve the triangle. If two solutions exist, find both.

25. $A = 76°, \quad a = 18, \quad b = 20$

26. $A = 110°, \quad a = 125, \quad b = 200$

27. $A = 120°, \quad a = b = 25$

41. Height Because of prevailing winds, a tree grew so that it is leaning 4° from the vertical. At a point 40 meters from the tree, the angle of elevation to the top of the tree is 30° (see figure). Find the height h of the tree.