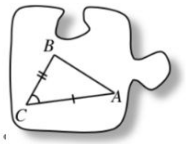
CW#____ Name:_____

Period: A1 A2 A3 B1 B3

7.2.1 What triangle tools do I still need?

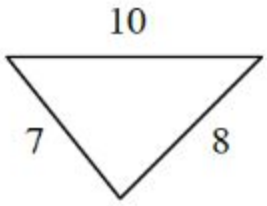


Determining Missing Parts of Triangles

#51 In previous courses you developed several tools to calculate missing parts of triangles. Are there more tools that you need to develop?

Given 3 sides of a triangle, what other information can you find? Calculate any missing information if you are able to. If you are unable to solve, explain why not.

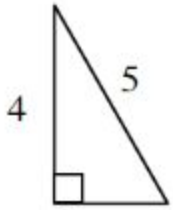
a.



Three sides

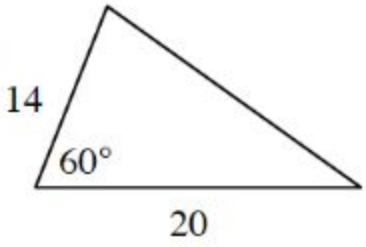
Given 2 sides and 1 angle of a triangle, what other information can you find? Calculate any missing information if you are able to. If you are unable to solve, explain why not.

b.



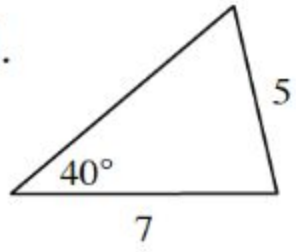
A right angle and two sides

c.



Two sides and the angle between them

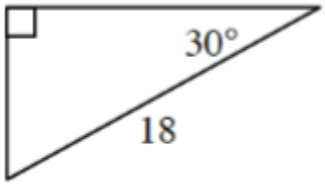
d.



Two sides and an angle not between them

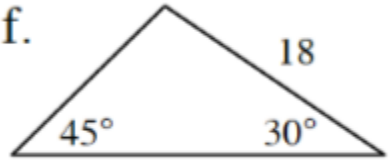
Given 1 side and 2 angles of a triangle, what other information can you find? Calculate any missing information if you are able to. If you are unable to solve, explain why not.

e.



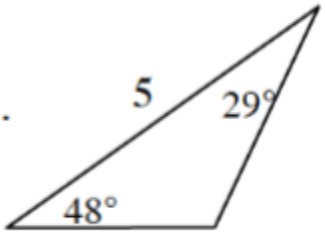
A right angle, another angle, and a side

f.



Two angles and a side not between them

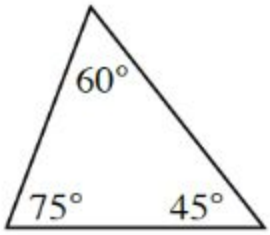
g.



Two angles and a side between them

Given 3 angles of a triangle, what other information can you find? Calculate any missing information if you are able to. If you are unable to solve, explain why not.

h.



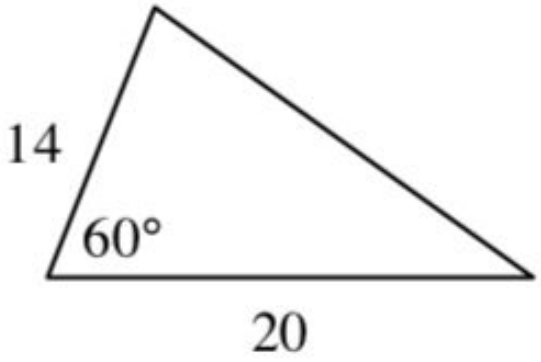
Three angles

Tools We Have For All Triangles:
"Angle Sum Theorem"

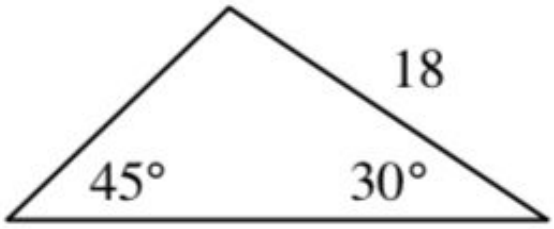
Tools we Have For Right Triangles:
"Pythagorean Theorem" "Trigonometric Ratios"

#53 WHAT IF IT DOES NOT HAVE A RIGHT ANGLE?
Leila has an idea. She knows that she has some tools to use with right triangles but notices that some of the triangles in problem #51 are *not* right triangles. Therefore, she thinks it is a good idea to split a triangle into two right triangles.

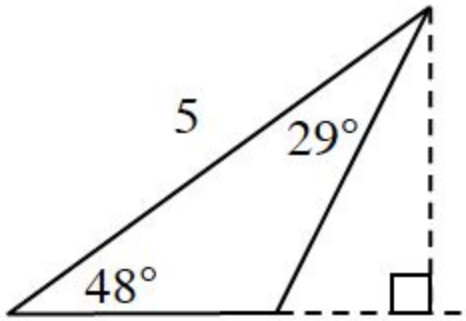
a. Discuss with your team how to change the diagram at right so that the triangle is divided into two right triangles. Then use your right triangle tools to solve for the missing side lengths and angle measures.



b. Leila wonders if her method would work for other triangles too. Test her method on the triangle from part (f) of problem #51 (also shown at right). Does her method work?



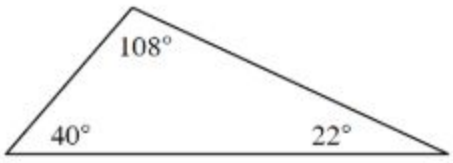
#54 Ryan likes Leila's idea so much that he looks for a way to create a right triangle from the triangle in part (g) of problem #51. He decides to draw a height *outside* the triangle, forming a large right triangle. Use the right triangle to help you calculate the missing side lengths of the original triangle.



WHAT'S WRONG WITH THE DIAGRAM?

After drawing some diagrams on his paper, Stephan thinks there is something wrong with his diagram labels. Examine each diagram below and decide whether or not the triangle could exist. If it cannot exist, explain why not.

a.



b.