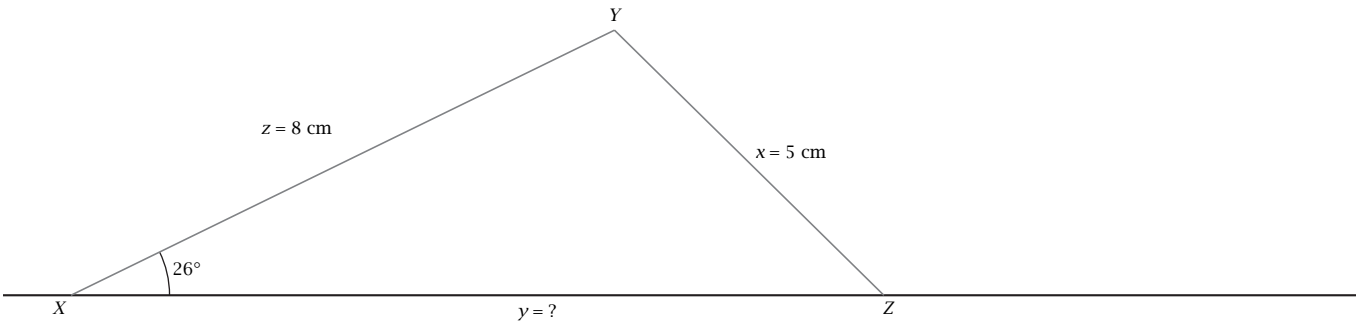
Name: _____ Group Members: _____

Exploration 6-5a: The Ambiguous Case, SSA

Date: _____

Objective: Investigate what can happen if SSA (side, side, angle) is given in a triangle.



1. In $\triangle XYZ$, side $x = 5$ cm, side $z = 8$ cm, and angle $X = 26°$. Do you agree with these measurements?

   _____

2. Draw another possibility for $\triangle XYZ$ with the same values of x, z, and X but a different value of y. For both triangles, measure side y.

   $y =$ _____ or $y =$ _____

3. What does the word **ambiguous** mean? Why is case SSA called *ambiguous?*

4. If side z and angle X remain fixed and side x is increased to 9 cm, will there still be two possible triangles? Draw the result on the given figure.

5. If side z and angle X remain fixed and side x is decreased to 3 cm, how many possible triangles will there be? Show your conclusion on the given figure.

6. When side x is perpendicular to side y, there is exactly one triangle. Calculate the value of x in this case. Confirm that it is correct by taking its measurement on the figure.

7. By clever application of the law of cosines and the quadratic formula, it is possible to *calculate* both values of y in Problem 2. Do this calculation.

8. Show how the technique of Problem 7 justifies the answer to Problem 4.

9. Show how the technique of Problem 7 justifies the answer to Problem 5.

10. What did you learn as a result of doing this Exploration that you did not know before?