

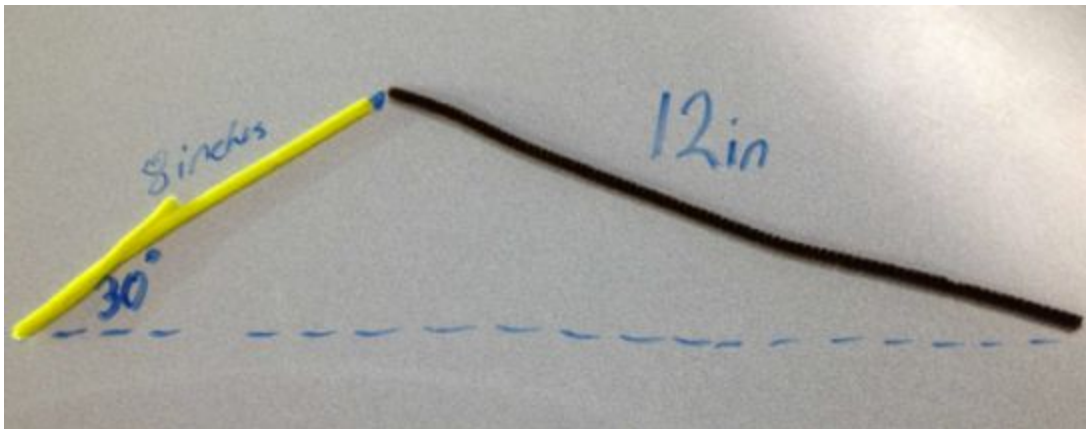
# Math SL EXPLORATION LAB 4

## Working with the Sine Law - The Ambiguous Case of the Sine Law

### PART A - The Investigation

Objective: Use the pipe cleaners to create as many triangles as possible.

1. Draw an extended baseline that is at least 24 inches in length and label **one end** as point A. Do **not** label a second endpoint. **Part of this side** will become side AC of a triangle.
2. Use one pipe cleaner that is 8 inches long and place one end at point A. You have now created side AB of a triangle (where point B is at the end of this pipe cleaner).
3. Measure the angle at A such that it is exactly  $30^\circ$ .
4. Side BC is a second pipe cleaner (darker color) and it will be 12 inches long.
5. Now record the measure of each side and each angle and record these measurements in a diagram of this triangle you have created, DABC. (see diagram)



6. To create other triangles, keep side AB as 8 inches and keep angle A as  $30^\circ$ . Now side BC can be shortened by 1 inch increments, so it will now be 11 inches. Once again, record the measure of each side and each angle and record these measurements in a diagram of this triangle you have created,  $\triangle ABC$ .
7. Continue creating triangles by shortening side BC by 1 inch increments. Record all triangles you constructed by drawing diagrams.

# Math SL EXPLORATION LAB 4

---

## PART B - The Practice

Find the two solutions to these triangles which are defined using the standard labelling:

	<b><i>a</i> cm</b>	<b><i>b</i> cm</b>	<b><i>A</i></b>
<b>1.</b>	7.4	18.1	$20^\circ$
<b>2.</b>	13.3	19.5	$14^\circ$
<b>3.</b>	13.5	17	$28^\circ$
<b>4.</b>	10.2	17	$15^\circ$
<b>5.</b>	7.4	15.2	$20^\circ$
<b>6.</b>	10.7	14.1	$26^\circ$
<b>7.</b>	11.5	12.6	$17^\circ$
<b>8.</b>	8.3	13.7	$24^\circ$

