

# Trigonometry - Engaging Resources

## Sine Law Investigation

This investigation asks students to measure sides and angles and then calculate the ratios in the Sine Law.

Students should notice that the angle side ratios are equal for the given triangle.

The Geogebra applet on Glen Reesor's page may then be used to see that the Sine Law is also valid for all triangles.

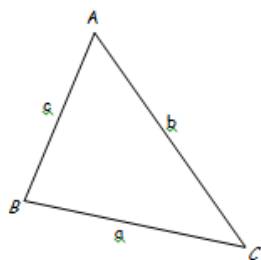
### Sine Law Investigation

- [Sine Law Investigation](#)
- [Sine Law Investigation KEY](#)

M20 Principles - Sine Law Investigation

Name: \_\_\_\_\_

Measure and record all sides and angles in the following triangle.



a = \_\_\_\_\_  $\angle A =$  \_\_\_\_\_

b = \_\_\_\_\_  $\angle B =$  \_\_\_\_\_

c = \_\_\_\_\_  $\angle C =$  \_\_\_\_\_

Use your calculator to complete the following calculations.

$$\frac{\sin A}{a} = \text{_____}$$

$$\frac{a}{\sin A} = \text{_____}$$

$$\frac{\sin B}{b} = \text{_____}$$

$$\frac{b}{\sin B} = \text{_____}$$

$$\frac{\sin C}{c} = \text{_____}$$

$$\frac{c}{\sin C} = \text{_____}$$

What do you notice? What can we say about angle-side pairs in acute non-right triangles?

### Sine Law Geogebra Application (Glen Reesor)

- <http://glenreesor.ca/trigonometry-sine-law/>

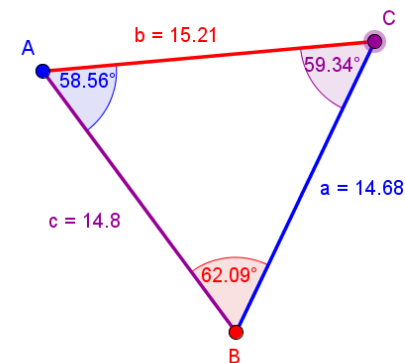
Show Side / Angle Pairs

A  B  C

$$\frac{a}{\sin A} = \frac{14.68}{\sin(58.56^\circ)} = 17.21$$

$$\frac{b}{\sin B} = \frac{15.21}{\sin(62.09^\circ)} = 17.21$$

$$\frac{c}{\sin C} = \frac{14.8}{\sin(59.34^\circ)} = 17.21$$



# Jig Saw Activity - Trigonometry Review

- [Trig Review - Jig Saw Activity](#)

## Jig-Saw Problem - Circles

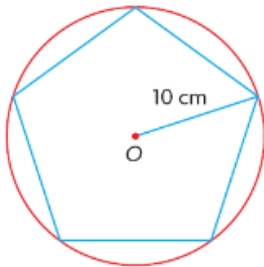


### Jig Saw Instructions:

1. In a group of 4, each member will solve the problem on their page individually.
2. Join 3 or 4 other people with the same shape and work together to become "experts" on the provided problem.
3. Rejoin your original group and each person will have a turn explaining the solution to the problem that they are now an "expert" on.

### Problem

A regular pentagon is inscribed in a circle with center  $O$ , as shown in the diagram. Determine the perimeter of the pentagon.



## Jig-Saw Problem - Squares



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2. Join 3 or 4 other people with the same shape and work together to become "experts" on the provided problem.
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### Problem

Points  $P$  and  $Q$  lie 240 m apart in line with and on opposite sides of a communications tower. The angles of elevation to the top of the tower from  $P$  and  $Q$  are  $50^\circ$  and  $45^\circ$ , respectively. Determine the height of the tower to the nearest tenth of a metre.

## Jig-Saw Problem - Triangles

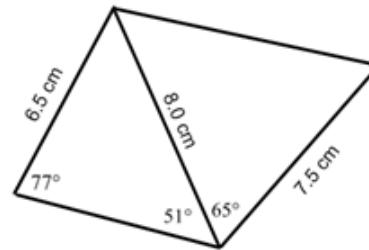


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### Problem

Determine the perimeter of the quadrilateral below.



## Jig-Saw Problem - Stars



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### Problem

A Good Year Blimp is flying at an altitude of 500 feet. Mark is standing directly below the Good Year Blimp. When Mark looks east the angle of elevation to the front of the Good Year Blimp is  $82^\circ$ . When Mark looks west the angle of elevation to the back of the Good Year Blimp is  $72^\circ$ . What is the length of the Good Year Blimp?