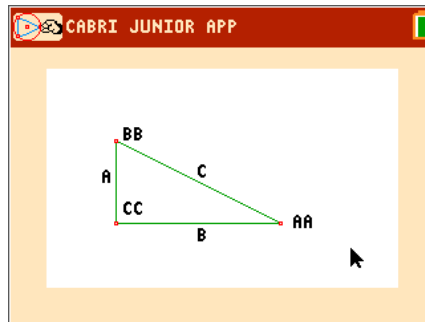




Problem 1 – Exploring a Triangle

Open the **Cabri™ Jr** file *TRIAN1*.

Measure the angles and side lengths of the triangle. Then drag vertex *BB*.



1. What kind of triangle is this?
2. Which measurements of the triangle change? Which measurements stay the same?
3. What word describes two triangles that have the same angles but different side lengths?
4. Drag point *BB* to complete the first three columns of the table. Calculate the other columns.

<i>A</i>	<i>B</i>	<i>C</i>	$\frac{A}{B}$	$\frac{A}{C}$	$\frac{B}{C}$
2.0					
2.3					
2.5					
2.8					
3.0					
3.5					
4.0					

5. How do the ratios for each of the similar triangles compare?
6. Write a conclusion about the ratios of the side lengths of similar triangles.



Problem 2 – Exploring Another Triangle

Open the Cabri™ Jr file *TRIAN2* and repeat the steps from Problem 1.

7. Is this triangle a right triangle?

8. Is this triangle similar to the first triangle? Why or why not?

9. Are all right triangles similar? Why or why not?

10. Drag point *BB* to complete the first three columns of the table. Calculate the other columns.

<i>A</i>	<i>B</i>	<i>C</i>	$\frac{A}{B}$	$\frac{A}{C}$	$\frac{B}{C}$
2.0					
1.8					
1.6					
1.4					

11. How do the ratios of the side lengths of Triangle 2 compare to the ratio of the side lengths of Triangle 1?

12. Write a conclusion about the ratios of the side lengths of triangles that are similar and triangles that are not similar.

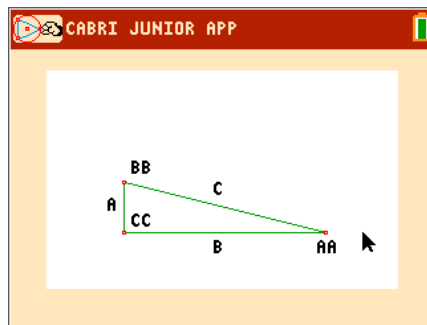


Problem 3 – Introducing the Trigonometric Ratios

Open the Cabri Jr file *TRIANG3*.

13. Measure the side lengths.

$$A = \underline{\hspace{2cm}} \quad B = \underline{\hspace{2cm}} \quad C = \underline{\hspace{2cm}}$$



Calculate the trigonometric ratios for $\angle AA$.

14. $\text{sine } \angle AA = \frac{A}{C} \approx \underline{\hspace{2cm}}$

15. $\text{cosine } \angle AA = \frac{B}{C} \approx \underline{\hspace{2cm}}$

16. $\text{tangent } \angle AA = \frac{A}{B} \approx \underline{\hspace{2cm}}$

17. What is the measure of angle AA ? _____

Use the calculator commands **sin**, **cos**, and **tan** to check your answers.

Problem 4 – Calculating the Trigonometric Ratios of a Different Angle

Using the same triangle in Cabri Jr file *TRIANG3*, write and calculate formulas using the side lengths A, B, and C to find $\text{sine } \angle BB$, $\text{cosine } \angle BB$, and $\text{tangent } \angle BB$.

18. $\text{sine } \angle BB = \underline{\hspace{2cm}} \approx \underline{\hspace{2cm}}$

19. $\text{cosine } \angle BB = \underline{\hspace{2cm}} \approx \underline{\hspace{2cm}}$

20. $\text{tangent } \angle BB = \underline{\hspace{2cm}} \approx \underline{\hspace{2cm}}$

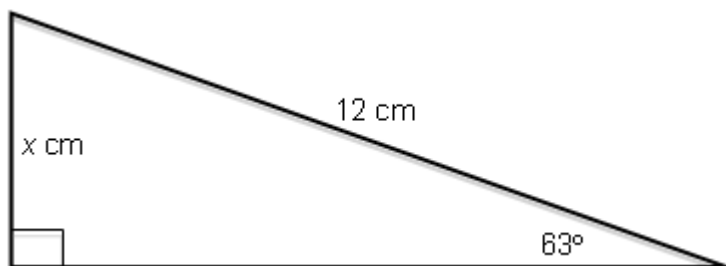
21. What is the measure of angle BB ? _____

Use the calculator commands **sin**, **cos**, and **tan** to check your answers.



Problem 5 – Finding Missing Side Lengths

22. Write a formula that relates 63° , the opposite side, and the hypotenuse. Solve for x .



23. Write a formula that relates 54° , the opposite side, and the adjacent side. Solve for x .

