**Geometry Name: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**

**Trigonometric Ratios & Cofunctions Date: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**

**Triangle Sides (based on θ)**



 **\_\_\_\_\_\_\_\_\_\_\_\_\_ \_\_\_\_\_\_\_\_\_\_\_\_**





 **\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**

Which side is the hypotenuse? \_\_\_\_\_\_\_\_\_ Which side is the hypotenuse? \_\_\_\_\_\_\_\_\_

Which leg is opposite θ? \_\_\_\_\_\_\_\_\_\_\_\_ Which leg is opposite θ? \_\_\_\_\_\_\_\_\_\_\_\_

Which leg is adjacent to θ?\_\_\_\_\_\_\_\_\_\_ Which leg is adjacent to θ?\_\_\_\_\_\_\_\_\_\_

 **What are the Trigonometric Ratios?**

|  |  |
| --- | --- |
|  |  |
|  |  |
|  |  |
|  |

**SohCahToa**

SOH \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ equals \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ over \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

 CAH \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ equals \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ over \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

 TOA \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ equals \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ over \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

**How do we use these ratios?**

 sin θ = \_\_\_\_\_\_ = \_\_\_\_\_\_

 cos θ = \_\_\_\_\_\_ = \_\_\_\_\_\_

 tan θ = \_\_\_\_\_\_ = \_\_\_\_\_\_

**Find the missing side and evaluate each for sin θ, cos θ, and tan θ.**



 ** **

**How would you solve the following problem?**

Suppose J and K are complementary angles in a right triangle. The value of tan J = .

What is the value of sin J?

1. Draw and label a triangle for the problem.

2. Use the given trig ratio to label the lengths of two sides. Then use the Pythagorean Theorem to find the third side.

3. Using the measures of the sides of the triangle, find sin J.

**Try this one...**

Suppose A and B are complementary angles in a right triangle. The value of sin A = .

What is the value of cos A?

**Trigonometry Co-Functions**

Let’s look at the relationship between our trig ratios.

* Start with a right triangle  where
* The acute angles will always be \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.
	+ If 
	+ If
	+ If
* Let’s summarize:
	+ 

For each of the following find the trigonometric ratio.





|  |
| --- |
| **Trigonometry Co-Functions** |
| **sin θ° =** | **cos θ° =** | **tan θ° =** |

Use co-functions to answer the following:

1. 
2. 
3. 
4. 
5. 
6. 
7. Is it ever possible that sin(x) = cos(x). Explain your reasoning.

Draw  where ∠B = 90° and .

1. What is the length of AB? \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
2. What is cos C? \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
3. What is sin A? \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
4. In right : m∠C = 90°. .

	1. 90 – m
	2. 45 – m
	3. 90 + m
	4. m
5. .

	1. 40°
	2. 50°
	3. 60°
	4. 90°
6. .

	1. 71°
	2. 35°
	3. 29°
	4. 19°
7. In : m∠C = 90°. . (There are 2 answers!)

	1. sin(B)
	2. cos(B)
	3. cos(90-A)
	4. cos(90-B)
8. In : m∠C = 90°. .

	1. 0.3
	2. 0.4
	3. 0.6
	4. 1.5