☐ **DO NOW – Geometry Regents Lomac 2014-2015** **Date** ____. **due** ____. **Similarity Sine Cosine Tangent** | **7.4**

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Name _____**Per**_____

LO: I can write sine, cosine and tangent ratios for right triangles.

☐ (1) **Similar Right Triangles: Opposite**

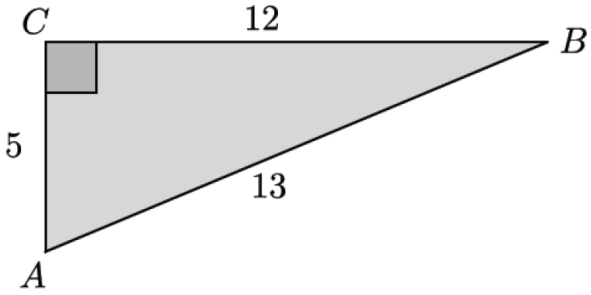
1. Identify the $\frac{opp}{hyp}$ ratios for ∠A _____

   and for ∠B _____

2. Identify the $\frac{adj}{hyp}$ ratios for ∠A _____

   and for ∠B _____

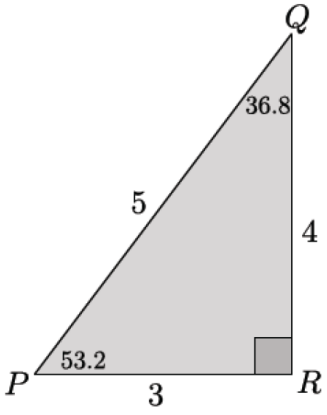
3. Describe the relationship between the ratios for ∠A and ∠B



☐ (2) **Similar Right Triangles: sine, cosine, and tangent**

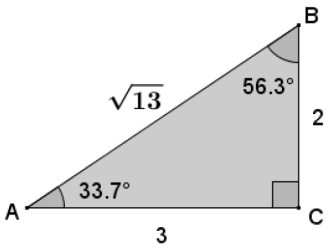
☐ (a) In △PQR, m∠P = 53.2° and m∠Q = 36.8°. Complete the following table.

Measure of Angle	$\sin\theta = \frac{opp}{hyp}$	$\cos\theta = \frac{adj}{hyp}$	$\tan\theta = \frac{opp}{adj}$
53.2°			
36.8°			



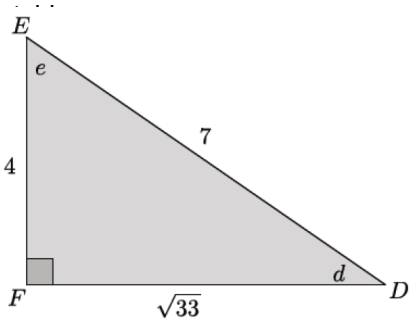
☐ (b) In the triangle at right, m∠A = 33.7° and m∠Q = 56.3°. Complete the following table.

Measure of Angle	**sine**	**cosine**	**tangent**
33.7°			
56.3°			



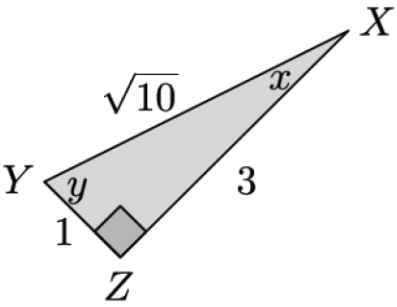
☐ (2) calculator **Similar Right Triangles: sine, cosine, and tangent**

☐ (c) In the triangle at right, let m∠A = e and m∠D = d. Complete the following



Measure of Angle	**sine**	**cosine**	**tangent**
d			
e			

☐ (d) In the triangle at right, let m∠X = x and m∠Y = y. Complete the following table.



Measure of Angle	**sine**	**cosine**	**tangent**
x			
y			

☐ (e) Tamar did not finish completing the table below for a diagram similar to the previous problems that the teacher had on the board wherer p was the measure of ∠P and q was the measure of ∠Q. Use any patterns you notice from parts (a) through (d) to complete the table for Tamar AND draw a diagram of triangle PQR.

Measure of Angle	**sine**	**cosine**	**tangent**
p	$\sin p = \frac{11}{\sqrt{157}}$	$\cos p = \frac{6}{\sqrt{157}}$	$\tan p = \frac{11}{6}$
q			

☐ (f) Explain how you were able to determine the sine, cosine, and tangent of ∠Q in part (e).

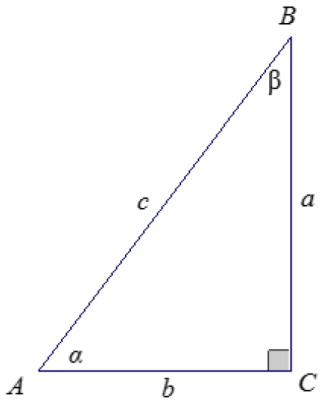
☐ (3) calculator **Similar Right Triangles: switching the reference angle**

☐ (a) If α and β are the measurements of complementary angles, tehn we are going to show that $\sin\alpha = \cos\beta$.

In right triangle ABC, the measurement of acute angle $\angle A$ is denoted by α, and the measurement of acute angle $\angle B$ is denoted by β.

Determine the following values in the table.

$\sin\alpha$	$\sin\beta$	$\cos\alpha$	$\cos\beta$



What can you conclude from the results?

☐ (b)

Find values for θ that make each statement true.

a. $\sin\theta = \cos(25)$

b. $\sin 80 = \cos\theta$

c. $\sin\theta = \cos(\theta + 10)$

d. $\sin(\theta - 45) = \cos(\theta)$

☐ (7) calculator

Exit Ticket

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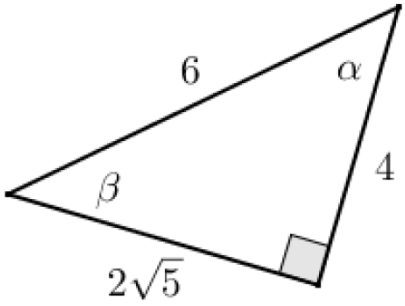
☐ (8) compass and straightedge

Homework

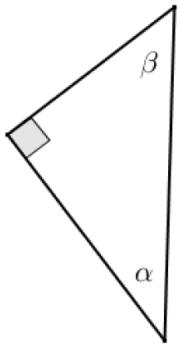
Given the triangle in the diagram, complete the following table.

Angle Measure	sin	cos	tan
α			
β			



Given the table of values below (not in simplest radical form), label the sides and angles in the right triangle.

Angle Measure	sin	cos	tan
α	$\frac{4}{2\sqrt{10}}$	$\frac{2\sqrt{6}}{2\sqrt{10}}$	$\frac{4}{2\sqrt{6}}$
β	$\frac{2\sqrt{6}}{2\sqrt{10}}$	$\frac{4}{2\sqrt{10}}$	$\frac{2\sqrt{6}}{4}$



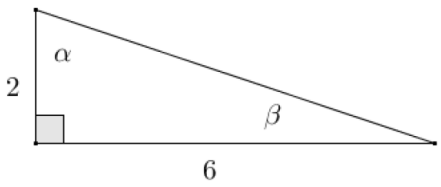
☐ (8) calculator

Homework

Given $\sin\alpha$ and $\sin\beta$, complete the missing values in the table. You may draw a diagram to help you.

Angle Measure	sin	cos	tan
α	$\frac{\sqrt{2}}{3\sqrt{3}}$	$\frac{5}{3\sqrt{3}}$	
β			

Given the triangle shown to the right, fill in the missing values in the table.

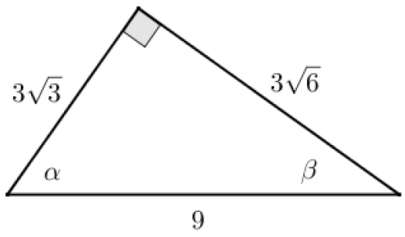


Angle Measure	sin	cos	tan
α			
β			

.

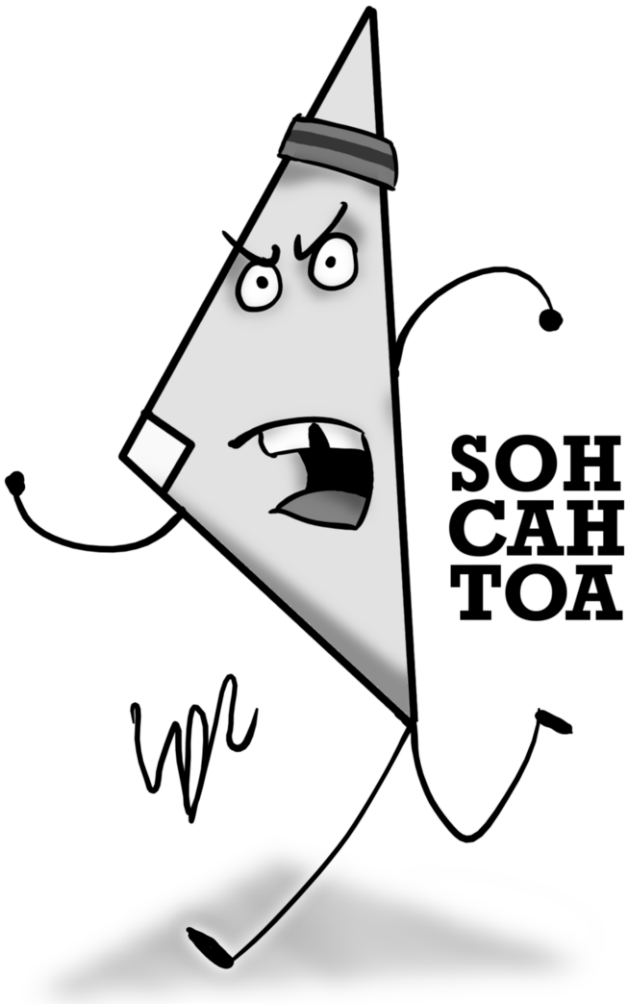
Jules thinks that if α and β are two different acute angle measures, then $\sin\alpha \neq \sin\beta$. Do you agree or disagree? Explain.

Given the triangle in the diagram, complete the following table.



Angle Measure	sin	cos	tan
α			
β			

$$S\frac{o}{h}C\frac{a}{h}T\frac{o}{a}$$



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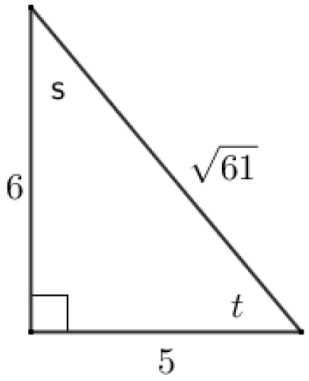
1. Given the diagram of the triangle, complete the following table.

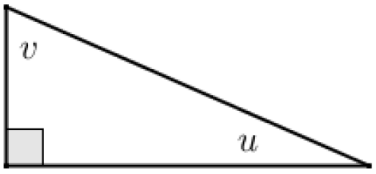
Angle Measure	$\sin\theta$	$\cos\theta$	$\tan\theta$
s			
t			



a. Which values are equal?

b. How are $\tan s$ and $\tan t$ related?

2. If u and v are the measures of complementary angles such that $\sin u = \frac{2}{5}$ and $\tan v = \frac{\sqrt{21}}{2}$, label the sides and angles of the right triangle in the diagram below with possible side lengths.



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Draw a diagram to represent right triangle MLB with

Right angle L

Reference angle M

$$\frac{opposite}{hypotenuse} = \frac{5}{13}$$

$$\frac{opposite}{adjacent} = \frac{5}{12}$$