Name: _____ # _____

Geometry: Period _____
Ms. Pierre
Date: _____

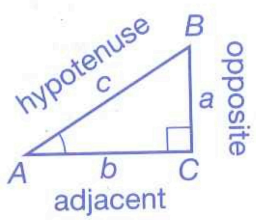
Trigonometric Ratios

Today's Objective

SWBAT compute trigonometric ratios for acute angles in right triangles.

The ratios of the side lengths of a right triangle depend on the measure of its acute angles. These are called _____ _____.

Sine of $\angle A$ (sin A) = $\frac{\textbf{O}}{\textbf{H}} = \frac{a}{c}$



Cosine of $\angle A$ (cos A) = $\frac{\textbf{A}}{\textbf{H}} = \frac{b}{c}$

Tangent of $\angle A$ (tan A) = $\frac{\textbf{O}}{\textbf{A}} = \frac{a}{b}$

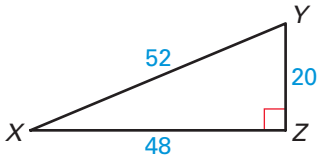
Thinking "_____-_____-_____" can help you remember these ratios. Using these ratios, you can find the length of any side of a right triangle if you know one acute angle and any other side.

Example 1

Find the sin X, cos X, and tan X. Write each answer as a fraction.

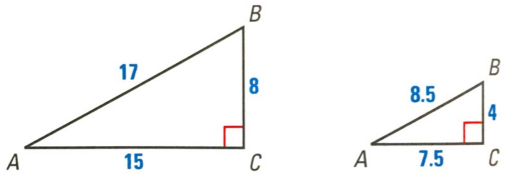
☑ Check for Understanding

Find the sin Y, cos Y, and tan Y. Write each answer as a fraction.



Example 2

Compare the sine, the cosine, and the tangent ratios for $\angle A$ in each triangle below.



Are the triangles similar?

- Are the corresponding angles congruent?

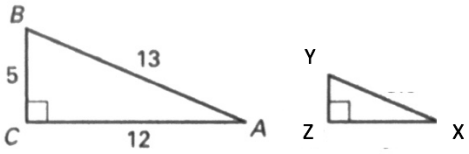
- Are the sides proportional?

	Large triangle	Small triangle
sin A $=\frac{opposite}{hypotenuse}$		
cos A $=\frac{adjacent}{hypotenuse}$		
tan A $=\frac{opposite}{adjacent}$		

Conclusion: Trigonometric ratios for _____ angles of _____ triangles are the _____.

☑ Check for Understanding

$\Delta ABC \sim \Delta XYZ$



a) What is sine of $\angle X$?

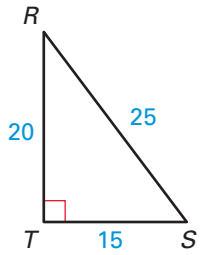
b) What cosine of $\angle X$?

c) What tangent of $\angle X$?

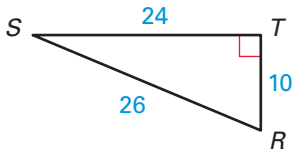
Guided Practice

Find sin R, cos R, tan R for each right triangle. Write each answer as a fraction.

1.



2.



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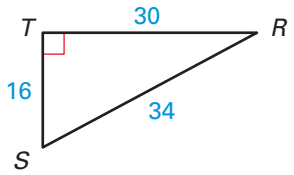
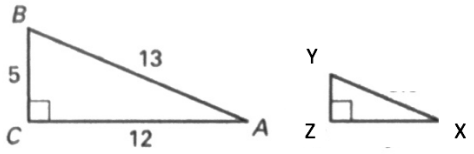


4. $\Delta ABC \sim \Delta XYZ$

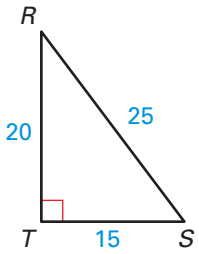
What is sine of $\angle Y$?



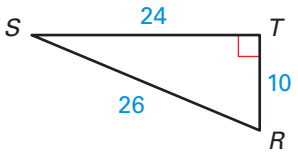
Independent Practice

Find sin S, cos S, tan S for each right triangle. Write each answer as a fraction.

1.



2.



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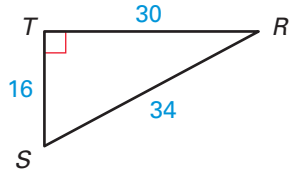
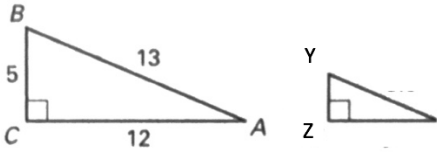


4. $\Delta ABC \sim \Delta XYZ$

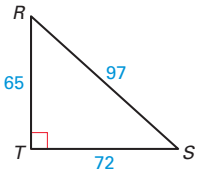
What is cosine of $\angle Y$?



Home Work

Find sin R, cos R, tan R and sin S, cos S, tan S, for the right triangle. Write each answer as a fraction.

1.



sin R =

cos R =

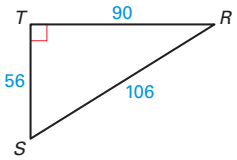
tan R =

sin S =

cos S =

tan S =

2.



sin R =

cos R =

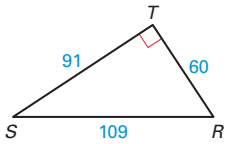
tan R =

sin S =

cos S =

tan S =

3.



sin R =

cos R =

tan R =

sin S =

cos S =

tan S =

Home Work

A student says that sin D > sin A because the side lengths of ΔDEF are greater than the side lengths of ΔABC. Explain why the student is incorrect.