

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

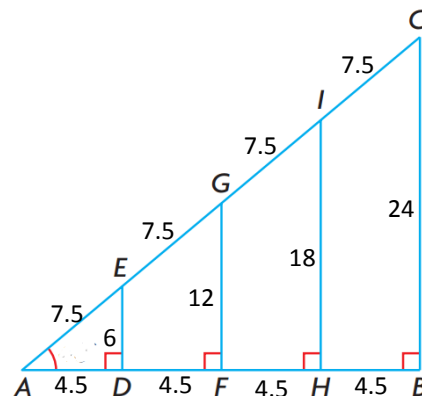
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### Checkpoint 7C

Integrated Math 2

Use the diagram to answer questions 1 through 4.

1) Explain why the four right triangles are similar.



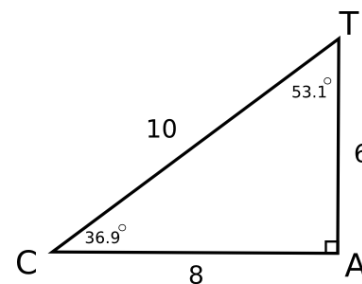
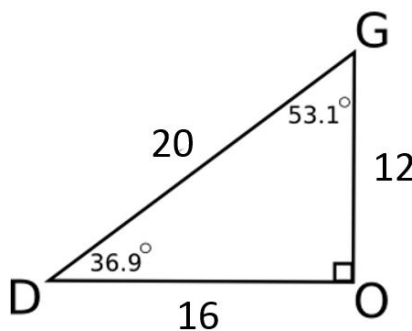
2) Fill in the chart below. Calculate each ratio to two decimal places.

Triangle	Side Opposite to $\angle A$	Side Adjacent to $\angle A$	Hypotenuse	Trigonometric Ratios		
				$\frac{\text{opposite}}{\text{hypotenuse}}$	$\frac{\text{adjacent}}{\text{hypotenuse}}$	$\frac{\text{opposite}}{\text{adjacent}}$
$\triangle ABC$	$BC = \dots$	$AB = \dots$	$AC = \dots$	$\frac{BC}{AC} = \dots$	$\frac{AB}{AC} = \dots$	$\frac{BC}{AB} = \dots$
$\triangle ADE$						
$\triangle AFG$						
$\triangle AHI$						

3) Describe the relationships of the trigonometric ratios in the table. Hint: Convert them to a decimal value.

4) Do you think the relationships you described in question 3 would change if angle A changed to a different measure?

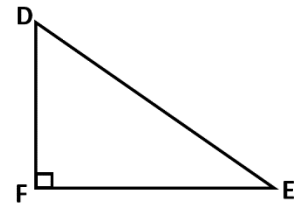
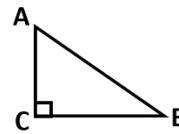
5) Prove that  $\sin(G)$  and  $\sin(T)$  are equivalent.



6) Use  $\triangle ABC \sim \triangle DEF$  to answer the following questions.

If  $\sin(A) = \frac{6}{7.5}$ , choose the expression that is equivalent to  $\sin(A)$ :

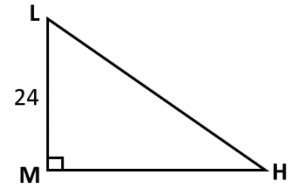
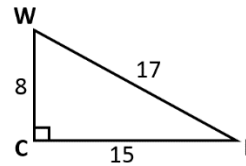
Is it  $\cos(D)$  or  $\cos(E)$ ? Explain.



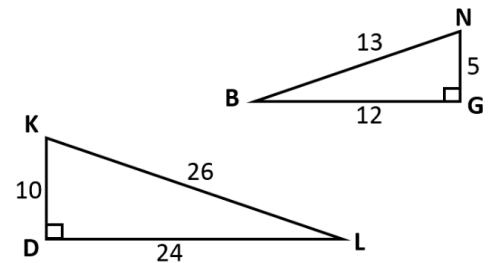
7) Use  $\triangle WCE \sim \triangle LMN$  to determine the value of the trigonometric expressions.

a)  $\sin(H)$

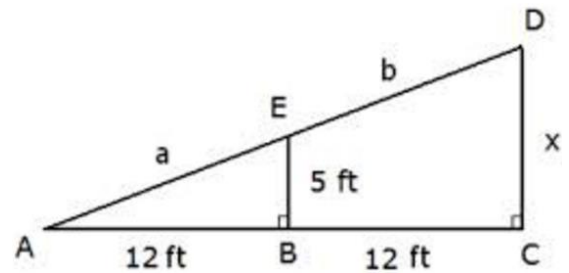
b)  $\tan(H)$



8) Find the cosine ratios of the corresponding non-right angles for  $\triangle KDL$  and  $\triangle NGB$ . Compare the ratios.



9) Solve for the missing variable and determine if  $\cos(\angle EAB) = \cos(\angle DAC)$ .



10) Imagine a road where part of it rises 8 miles over a horizontal run of 120 miles.

a) Draw a diagram of this situation. Hint: It resembles a right triangle where the hypotenuse is the actual road.

b) What is the rise over a run of 50 miles if the slope remains constant?

c) Compare the slopes. Explain why these slopes are the same.