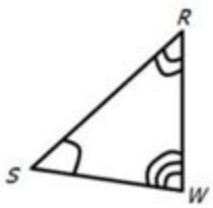
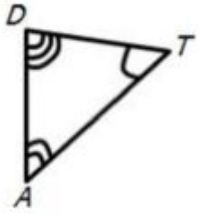
Similar Figures

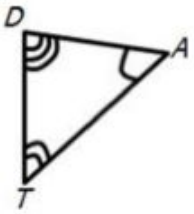
Week 1 (4/20 - 4/24):

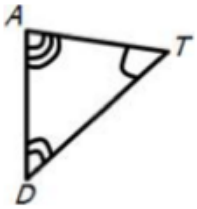
Topic: Identify corresponding sides and corresponding congruent angles of similar quadrilaterals and triangles.

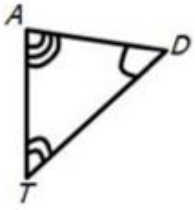
1. Look at Δ SRW. If Δ SRW ~ Δ TDA, circle the image that correctly labels Δ TDA?











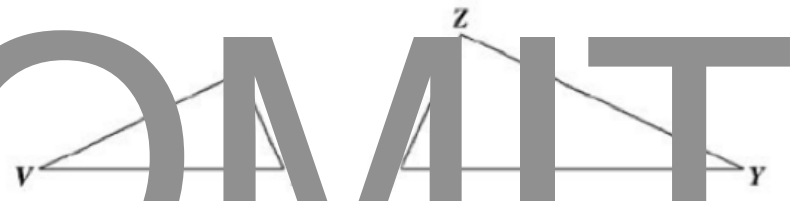
Hints:

- **Match the corresponding angles by looking at the underlined information in the problem.**

∠S corresponds to ∠___ ∠R corresponds to ∠___ ∠W corresponds to ∠___

- **Look at the number of corresponding arches each angle has! For example, ∠R has two corresponding arches; therefore, the angle that corresponds to R must have the same amount of corresponding arches (2 arches).**

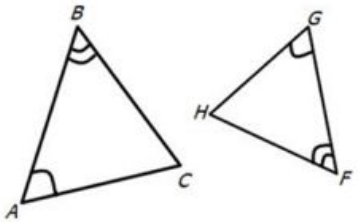
2. Triangle STV and triangle ZXY are similar. Highlight ALL pairs of segments that are corresponding sides of these triangles.



$\overline{ST}$ and $\overline{ZX}$	$\overline{TV}$ and $\overline{XY}$	$\overline{VT}$ and $\overline{ZX}$	$\overline{TV}$ and $\overline{XZ}$	$\overline{XY}$ and $\overline{SV}$	$\overline{SV}$ and $\overline{ZY}$

Topic: Given two similar quadrilaterals or triangles, write similarity statements using symbols.

3.



Δ BAC ~ Δ _____

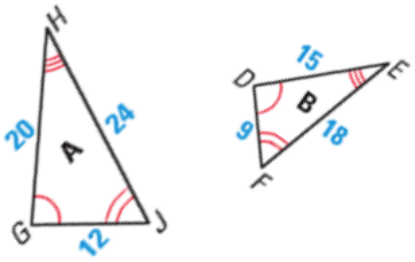
4. If Δ ABC is similar to Δ DFE, which angle of Δ DFE corresponds to ∠B? _____

Hint:

- **Match the corresponding angles by looking at the number of corresponding arches each angle has.**

∠B corresponds to ∠___ ∠A corresponds to ∠___ ∠C corresponds to ∠___

5. Complete the table using the pair of similar figures.



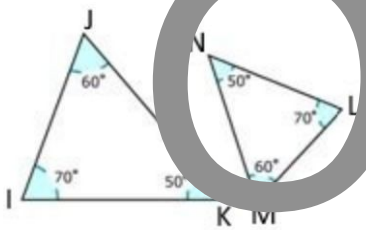
Corresponding Sides	Ratio	Scale Factor
$\overline{GH}$ ~ _____	$\frac{\square}{\square}$	*Reduce the ratio in simplest form!
$\overline{FD}$ ~ _____	$\frac{\square}{\square}$	*Reduce the ratio in simplest form!
$\overline{JH}$ ~ _____	$\frac{\square}{\square}$	*Reduce the ratio in simplest form!

Hint:

- **When matching corresponding sides, be sure to look at the corresponding angles!**

For example, ∠G has 1 arch and ∠H has 3 arches. Therefore, ∠G = ∠D and ∠H = ∠E; making $\overline{GH}$ ~ $\overline{DE}$.

6. Identify the corresponding angles and their measurement using the similar figures below.



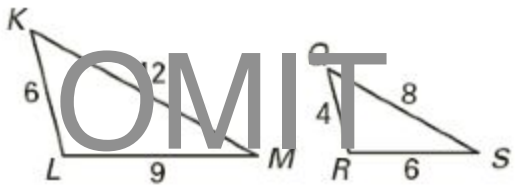
Corresponding Angles	Angle Measurement
∠J = _____	
_____ = ∠	
∠ = _____	

OMIT

Topic: Write proportions to express the relationships between the lengths of corresponding sides of similar quadrilaterals and triangles.

Sketch a double number line to include the ratios of all corresponding sides. Lastly, calculate the scale factor for each pair of similar figures.

7.



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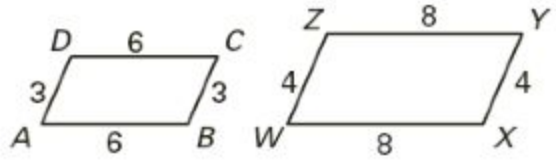
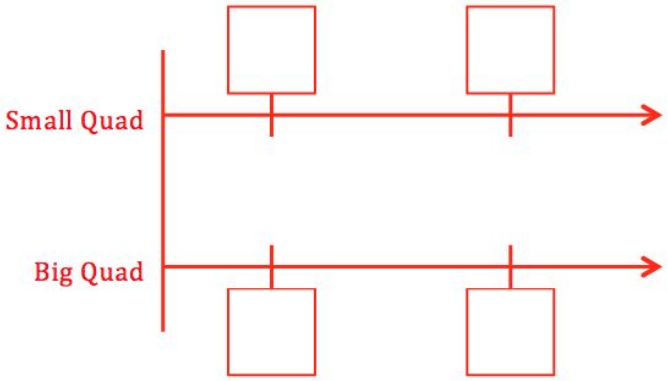
Scale Factor: _____

8.





Scale Factor: _____

9. The following is true about similar figures DOT and ANG.

$$\frac{DO}{AN} = \frac{OT}{NG} = \frac{DT}{AG} = \frac{3}{1}$$

Hint:

If you struggle with reducing fractions, convert it to a decimal. (3 ÷ 1 = ____)

The answer choice that has the same decimal, will be the correct answer!

Which could be the length of $\overline{DT}$ and $\overline{AG}$?

A) DT = 6 and AG = 2

$$\frac{DT}{AG} = \frac{\square}{\square} =$$

and AG = 6

B) DT = 9

$$\frac{DT}{AG} = \frac{\square}{\square} =$$

C) DT = 6 and AG = 4

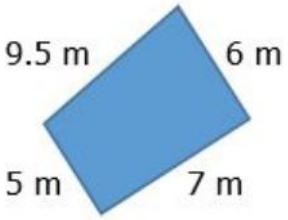
$$\frac{DT}{AG} = \frac{\square}{\square} =$$

D) DT = 9 and AG = 4

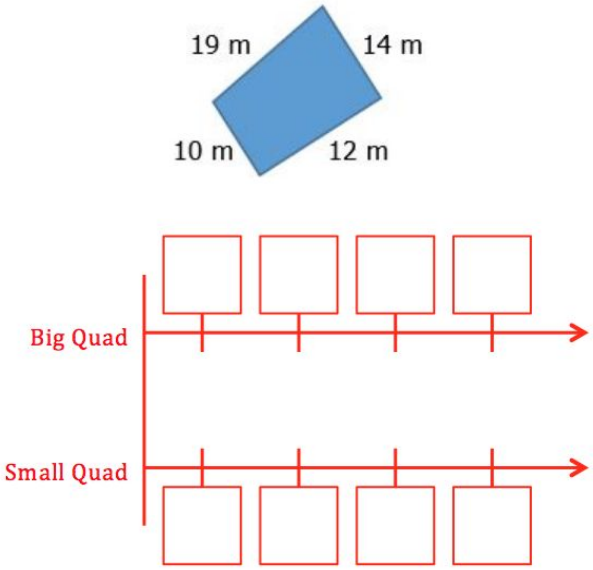
$$\frac{DT}{AG} = \frac{\square}{\square} =$$

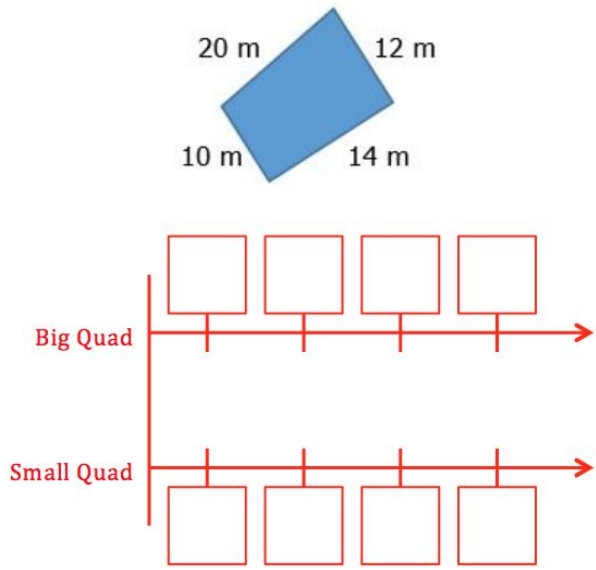
10. Look at the quadrilateral.

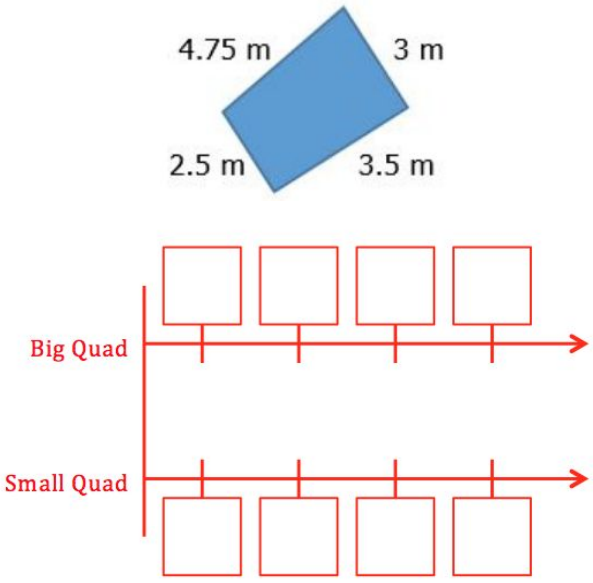
Hint: The scale factor (reduced fraction) should be the same for all corresponding sides ratios!

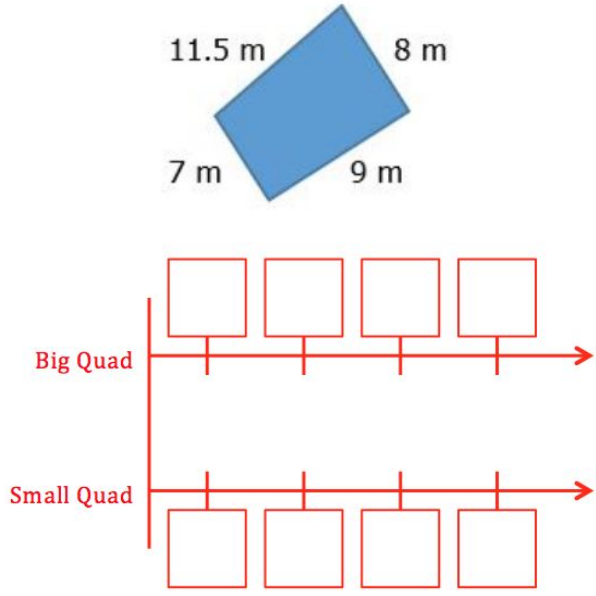


Which shape is similar?







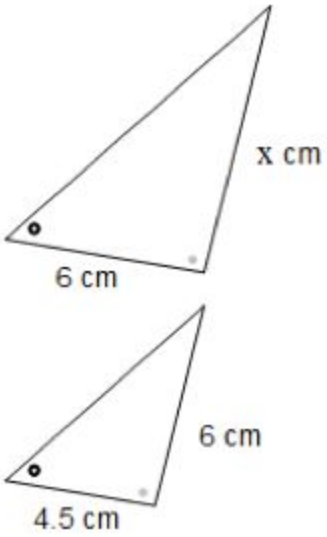


Week 2 (4/27 - 5/1):

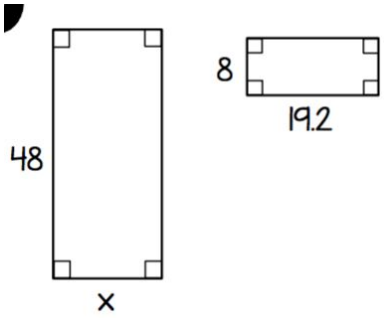
Topic: Solve a proportion to determine a missing side length of similar quadrilaterals or triangles.

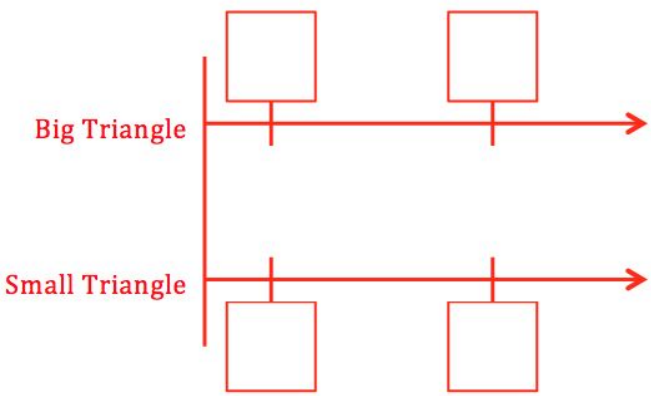
Solve for the missing side.

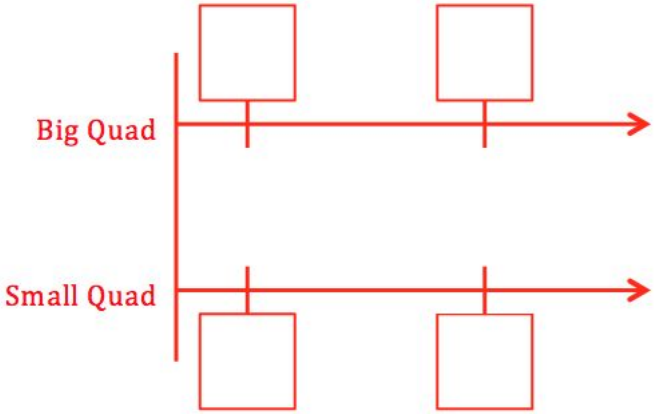
1.



2.

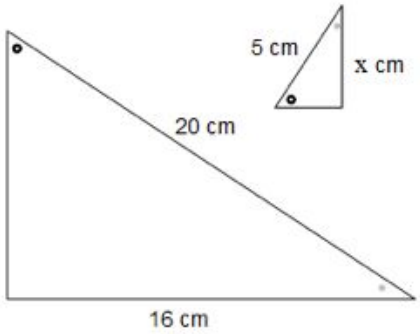


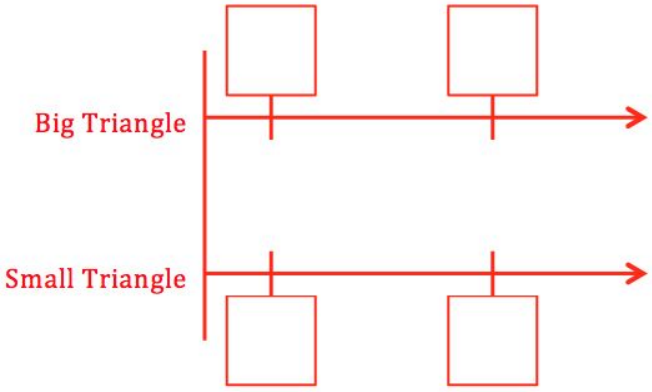




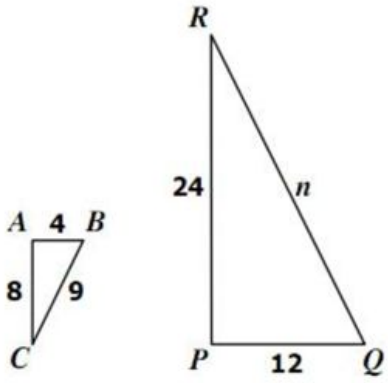
3.

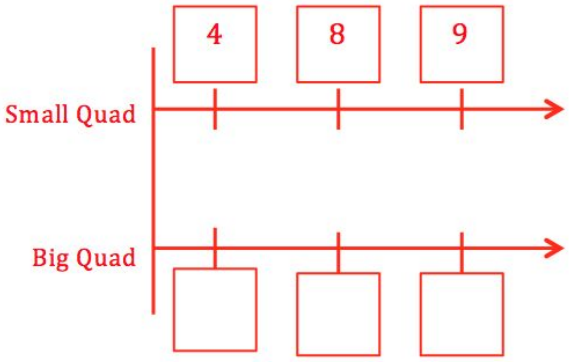
4.





5. Triangle ABC is similar to triangle PQR. Which proportion can be used to find *n*?





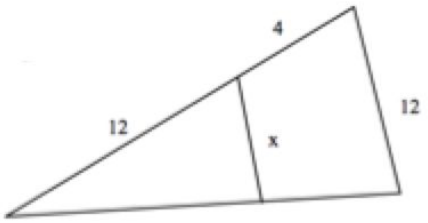
A) $\frac{8}{12} = \frac{n}{9}$	B) $\frac{8}{9} = \frac{n}{12}$	C) $\frac{4}{9} = \frac{12}{n}$	D) $\frac{4}{8} = \frac{12}{n}$

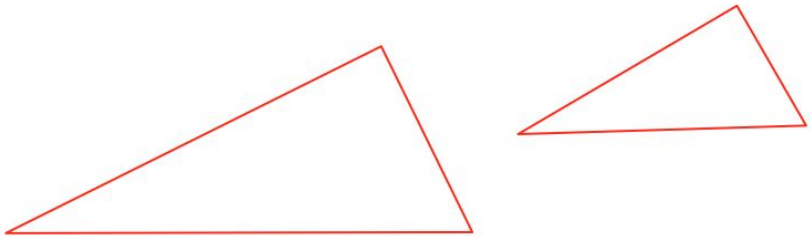
Directions: Solve for the missing side. HINT: Be sure to redraw the overlapping triangles separately.

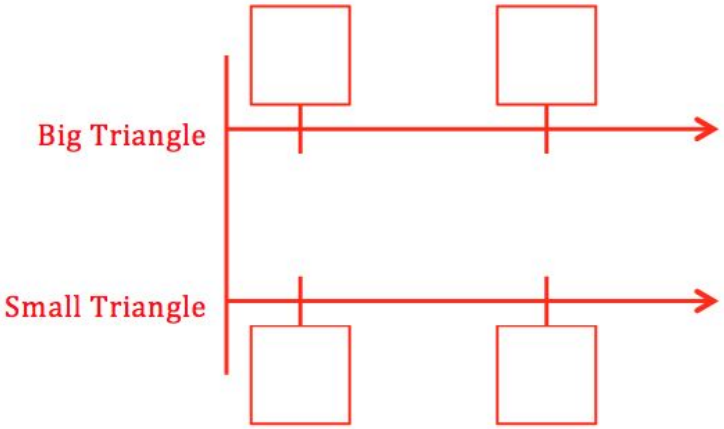
6.

OMIT

7.

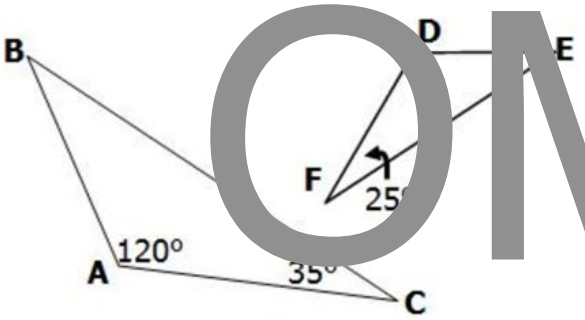






Topic: Given angle measures in a quadrilateral or triangle, determine unknown angle measures in a similar quadrilateral or triangle.

8. If the two triangles shown are similar, which statement is true?



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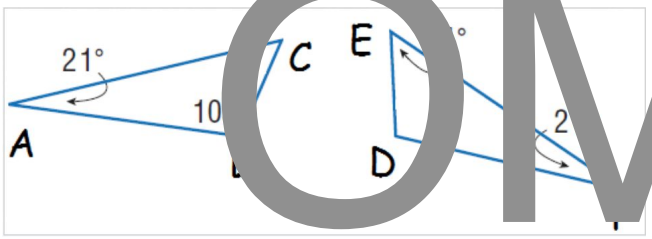
A) Δ ABC ~ Δ DFE

B) Δ ABC ~ Δ DEF

C) Δ DFE ~ Δ ACB

D) Δ DEF ~ Δ CBA

9.



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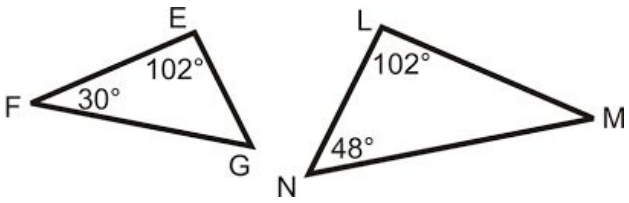
Corresponding Angles	Angle Measurement
∠ = _____	
_____ ∠D	
∠C = _____	

10.



Corresponding Angles	Angle Measurement
∠L = _____	
_____ = ∠F	
∠N = _____	

Hint: The sum of interior angles of a triangle is 180^o.

△EFG:

$180^o - 102^o - 30^o =$ _____

∠G = _____

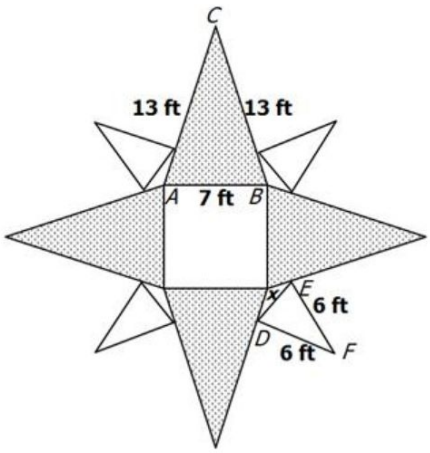
△LNM:

$180^o - 102^o - 48^o =$ _____

∠M = _____

Challenges:
Choose <u>TWO</u> of the challenges to complete!!

<u>Option 1</u>: William is building a decorative star with similar wooden triangles. Triangle ABC is similar to triangle EDF. Which proportion can be used to find *x*?



$\frac{7\text{ ft}}{x} = \frac{13\text{ ft}}{6\text{ ft}}$	$\frac{7\text{ ft}}{x} = \frac{6\text{ ft}}{13\text{ ft}}$
$\frac{x}{7\text{ ft}} = \frac{13\text{ ft}}{6\text{ ft}}$	$\frac{7\text{ ft}}{13\text{ ft}} = \frac{6\text{ ft}}{x}$

<u>Option 2</u>: Create your own design using similar triangles and/or quadrilaterals. Be sure to include side measurements on your design.

<u>Option 3</u>: **Identify** and **describe** how similar figures are used in a career today. *Your response **must** be <u>at least</u> 5 sentences long.*