EQ: G.CO.10 What are the properties of midsegments?

Essential Question Essential Question Essential Question Essential Question Essential Question Essential Question Essential Question

Week 3, Lesson 1

1. Warm Up
2. Quiz: SRT.2 and SRT.3
3. TI-NSpire activity
4. Notes
5. Left-side practice
6. Closure

16

Midsegments

17

Warm-up Warm-up Warm-up Warm-up Warm-up Warm-up Warm-up Warm-up Warm-up Warm-up Warm-up Warm-up Warm-up Warm-up Warm-up Warm-up Warm-u

Warm Up:

To prepare for the quiz, take a few moments to review pages 10-15 in your IAN.

Then, self-assess with the following questions:
1. Do you know how to set up and simplify proportions?
2. Do you know how to determine if two triangles are similar by SSS~ and SAS~?
3. Do you know all the different ways to prove two triangles are similar by AA~?

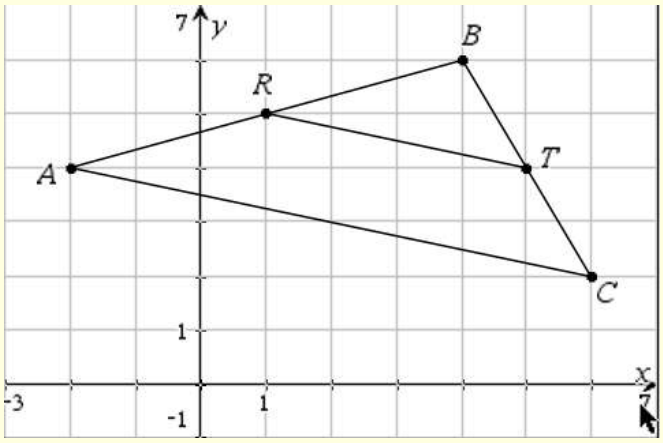
SRT.2 and SRT.3 Quiz!

TI-NSpire Activity
Triangle Midsegments

Welcome to "Triangle Midsegments."

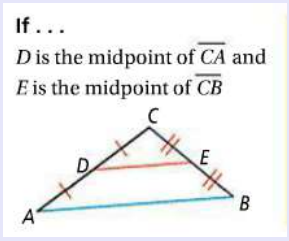
To move through the tabs, you can use your mouse, or press [ctrl] and then left/right.

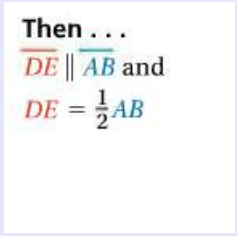
If you need help, please ask your team!



Triangle Midsegments

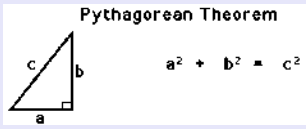
If a segment joins the midpoints of 2 sides of a triangle, then that segment is:
(1) parallel to the 3rd side, and
(2) half as long as the 3rd side.

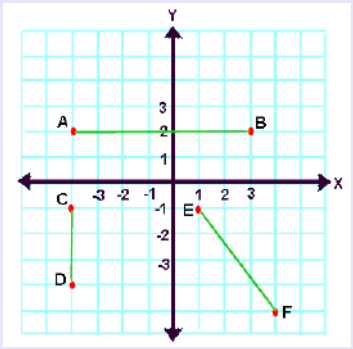




Formulas

$$\text{slope} = \frac{\text{rise}}{\text{run}}$$





Mid-point Formula

$$\left(\frac{x_1+x_2}{2}, \frac{y_1+y_2}{2}\right)$$

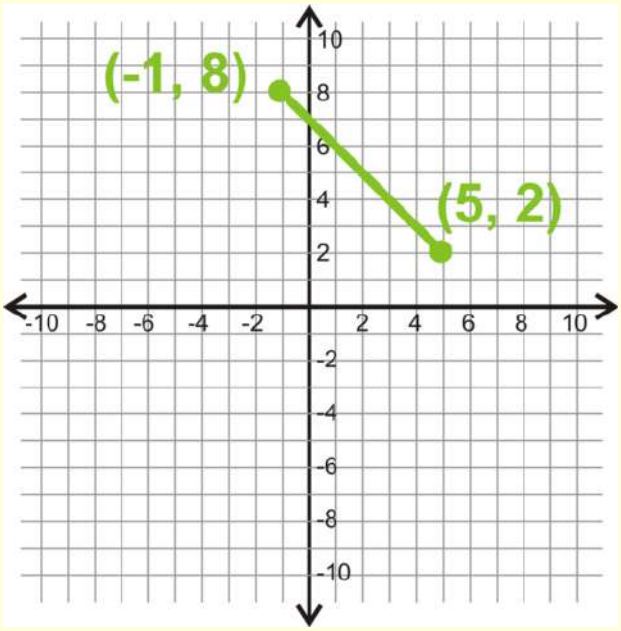
Find the midpoint of the FR with F(2,4) and R (4,8).

Summary:

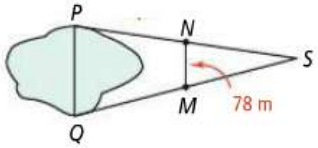
Left-Side Practice

Calculate the midpoint for F(-2,4) and G(2, 6).

Calculate the midpoint, slope, and length for the following segment.



Surveying A surveyor needs to measure the distance PQ across the lake. Beginning at point S, she locates the midpoints of $\overline{SQ}$ and $\overline{SP}$ at M and N. She then measures $\overline{NM}$. What is PQ?

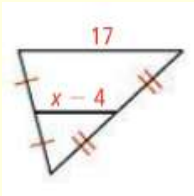


Closure Closure Closure Closure Closure Closure Closure Closure Closure Closure Closure Closure Closure Closure Closure Closure Closure Closure Closure

Right Side...

Write a summary that answers the essential question.

Left Side...



EQ: G.CO.10 What are the properties of midsegments?

Essential Question Essential Question Essential Question Essential Question Essential Question Essential Question Essential Question

Week 3, Lesson 2

1. Warm Up
2. Left-Side Practice
3. Unit Study Guide

18

Midsegment

19

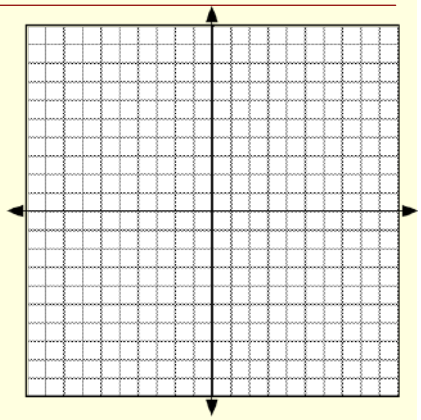
Warm-up Warm-up Warm-up Warm-up Warm-up Warm-up Warm-up Warm-up Warm-up Warm-up Warm-up Warm-up Warm-up Warm-up Warm-up Warm-up Warm-u

Warm Up:

1. Find the midpoint between A (-1, 4) and B(3,-2).

2. What are the 3 properties of a midsegment?

Left-Side Practice



1. Graph $\triangle$ABC with vertices at A (8,0), B(4,6) and C(0,0)

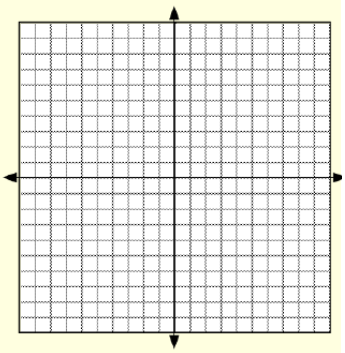
(a) Find the midpoint of AB. Label it D.

(b) Find the midpoint of BC. Label it E.

(c) Find the slopes of DE and AC.

(d) Find the lengths of DE and AC.

(e) Using your calculations from (a), (b), (c), and (d), explain the relationship between DE and Δ ABC.



2. Graph ΔLMO with vertices at L(-4,2), M(2,6) and O(4,-2)

(a) Find the midpoint of LO. Label it X.

(b) Find the midpoint of LM. Label it Y.

(c) Find the slopes of XY and MO.

(d) Find the lengths of XY and MO.

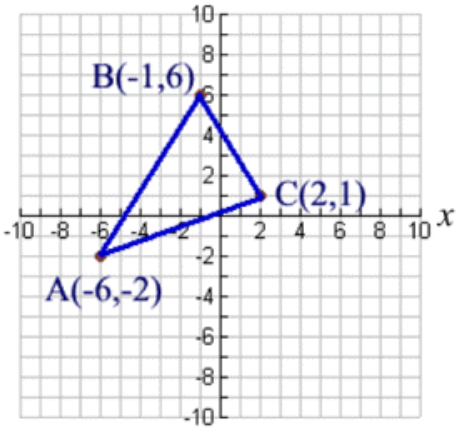
(e) Using your calculations from (c) and (d), explain the relationship between XY and ΔLMO.

01/26/2015	Unit 5 G-SRT.3	Assessed Standards	0	6.6 out of 10.00	Raw Score	0.66/1.00
01/25/2015	Unit 5 G-SRT.2	Assessed Standards	0	10 out of 10.00	Raw Score	1.00/1.00
01/24/2015	Unit 5 G-SRT.1	Assessed Standards	0	9 out of 10.00	Raw Score	0.90/1.00
01/23/2015	Unit 5 G-CO.10	Assessed Standards	0	Not Due	Raw Score	1.00 Points Possible
01/22/2015	Unit 5 G-CO.2	Assessed Standards	0	0 out of 10.00	Raw Score	0.00/1.00
01/05/2015	Plan for Success	Independent Work	0	10 out of 10.00	Raw Score	10.00/10.00

Independen
Assessed Standards
Totals

G-CO.2. Learning *I can prove that the transformation. ... wo sides of a triangle is functions that t... f the third side. other points a... that preserve d... translation versus horiz...*

1. Use the triangle bel... ces of a triangle are ...−2).



(a) What are the coordinates of $\Delta A'B'C'$, which is the image of ΔABC under the transformation $(x, y) \rightarrow (y, -x)$

A':_____ B':_____ C': _____

Explain how the lengths of the sides AND the measurements of the angles for this triangle compare with the original triangle.

_____

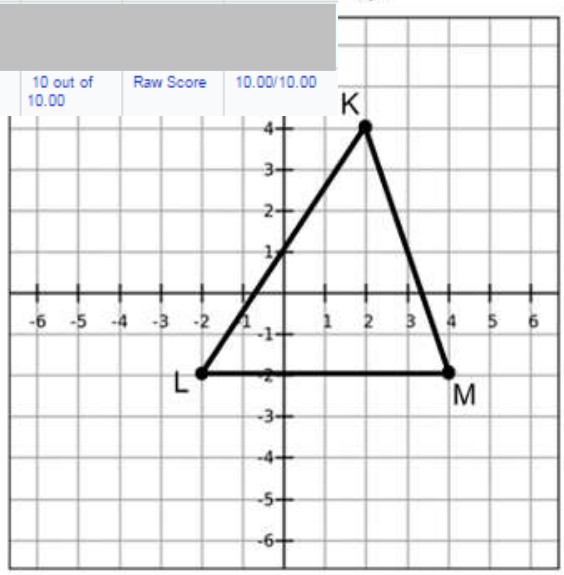
_____

(b) What are the coordinates of $\Delta A'B'C'$, which is the image of ΔABC (*use the original figure again*) under the transformation $(x, y) \rightarrow (2x, 3y)$?

A: _____ B':_____ C': _____

Explain how the lengths of the sides and the measurements of the angles for this triangle compare with the original triangle.

_____



(a) Find the midpoint of $\overline{KL}$ and $\overline{LM}$. Label them R and T.

(b) Calculate the slopes of $\overline{RT}$ and $\overline{KM}$.

(c) Calculate the lengths of $\overline{RT}$ and $\overline{KM}$.

(d) Using your calculations from (a), (b), and (c), explain the relationship between $\overline{RT}$ and $\triangle KLM$.

_____

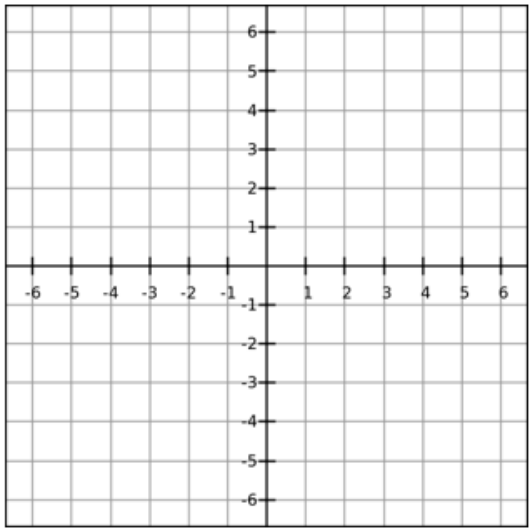
_____

_____

G-SRT.1. Learning Target: *I can verify the following statements by making multiple examples: a dilation of a line is parallel to the original line if the center of dilation is not on the line; a dilation of a line segment changes the length by a ratio given by the scale factor.*

3. Graph $\overline{DE}$ with $D(-3,6)$ and $E(6,-6)$ on the coordinate plane below.

(a) Graph the dilation of $\overline{DE}$ using the origin as the center and a scale factor of $\frac{1}{3}$. Label the dilation $\overline{D'E'}$.

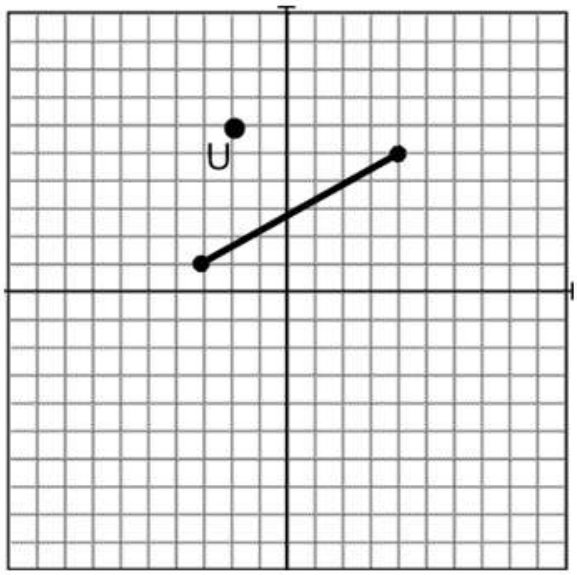


(b) Are the two segments parallel, perpendicular, coinciding, or none of the above? _____

(c) Find the length of the $\overline{DE}$ and $\overline{D'E'}$.

(d) Find the value of the ratio of the length of the dilated segment to the length of the original segment.

4. Given the segment shown below. If it is dilated about Point U, complete the following statements:



(a). The slopes of the segments will be _____, so the segments will be
(reciprocal, same, different)

_____
(parallel, perpendicular, coinciding – choose one)

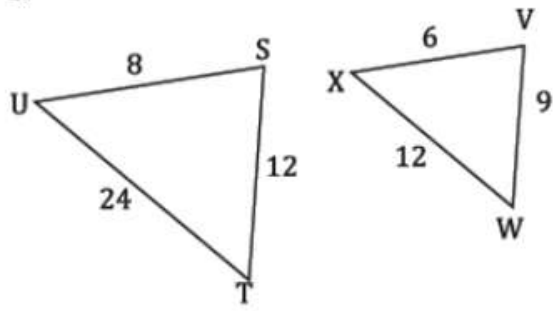
(b) The segments will be _____
(congruent, similar, neither – choose one)

because _____

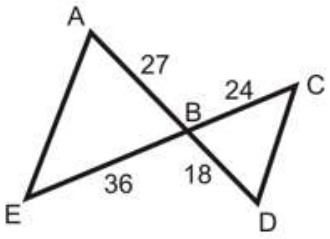
_____

G-SRT.2.Learning Target: *I can decide if two figures are similar based on similarity transformations. I can use similarity transformations to explain the meaning of similar triangles as the equality of all corresponding pairs of angles and the proportionality of all corresponding pairs of sides.*

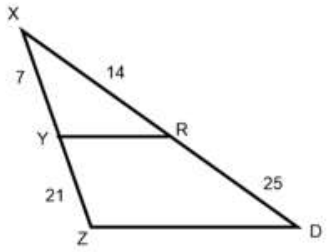
5. Are the two triangles below similar? If so, explain why **and provide a similarity statement**. If not, explain why. Show all of your work.



6. Are the two triangles shown below similar? If so, explain why **and provide a similarity statement**. If not, explain why. Show all of your work.



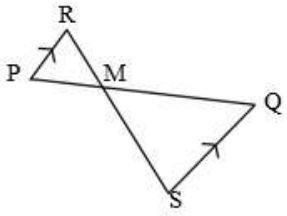
7. Are the two triangles shown below similar? If so, explain why **and provide a similarity statement**. If not, explain why. Show all of your work.



G-SRT.3 Learning Target: *I can establish the AA criterion by looking at multiple examples using similarity transformation of triangles.*

8. For each of the following, explain whether the two triangles are similar and **provide a similarity statement**, or not and why.

(a)



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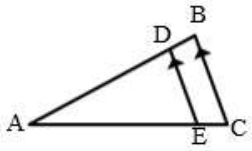

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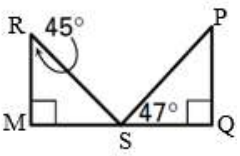

EQ: G.CO.10 What are the properties of midsegments?

Essential Question Essential Question Essential Question Essential Question Essential Question Essential Question Essential Question

Week 3, Lesson 3

1. Warm Up
2. G.CO.10 Quiz
3. Unit Study Guide

20

Test Review

21

Warm-up Warm-up Warm-up Warm-up Warm-up Warm-up Warm-up Warm-up Warm-up Warm-up Warm-up Warm-up Warm-up Warm-up Warm-up Warm-up Warm-u

Warm Up:

In order to review for the quiz, take a minute to go back through your notes and the left-side practices on pages 16-17. Then, answer the following questions:

1. Can you calculate midpoints?
2. Can you calculate slope using rise/run?
3. Can you calculate length using pythagorean theorem?
4. Can you use these calculations to explain what a midsegment is?

G.CO.10 Quiz

01/26/2015	Unit 5 G-SRT.3	Assessed Standards	0	6.6 out of 10.00	Raw Score	0.66/1.00
01/25/2015	Unit 5 G-SRT.2	Assessed Standards	0	10 out of 10.00	Raw Score	1.00/1.00
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Independen
Assessed Standards
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G-CO.2. Learning *I can prove that the transformation. ... wo sides of a triangle is functions that t... f the third side. other points a... that preserve d... translation versus horiz...*

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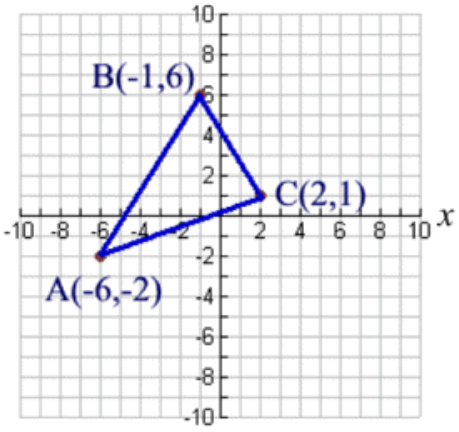

(a) What are the coordinates of $\Delta A'B'C'$, which is the image of ΔABC under the transformation $(x, y) \rightarrow (y, -x)$

A':_____ B':_____ C': _____

Explain how the lengths of the sides AND the measurements of the angles for this triangle compare with the original triangle.

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_____

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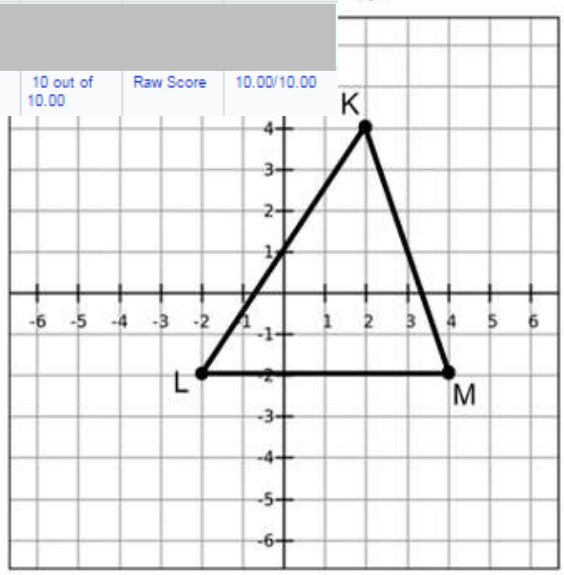

(a) Find the midpoint of $\overline{KL}$ and $\overline{LM}$. Label them R and T.

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_____

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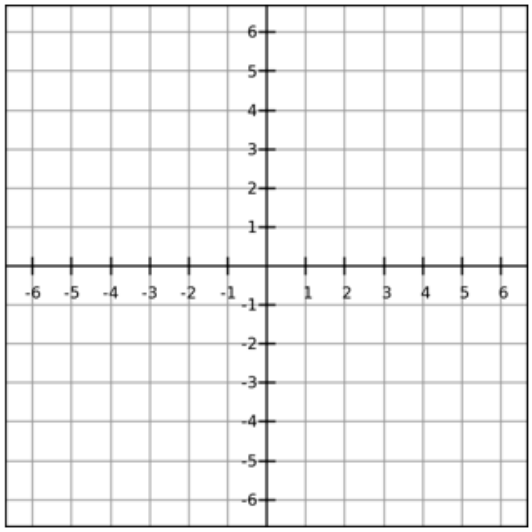

(b) Are the two segments parallel, perpendicular, coinciding, or none of the above? _____

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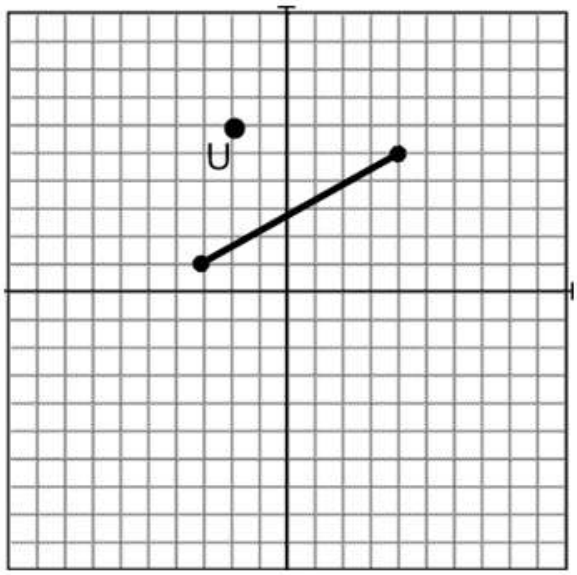

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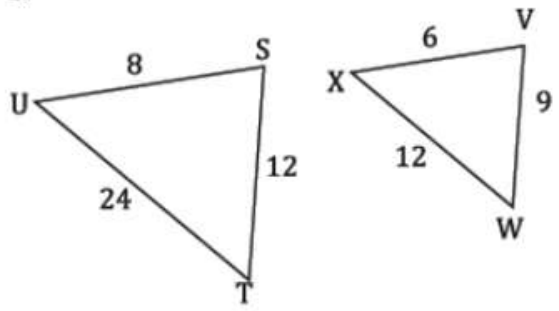
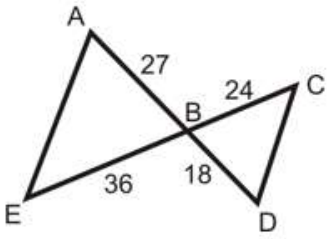
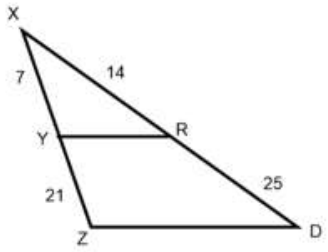


6. Are the two triangles shown below similar? If so, explain why **and provide a similarity statement**. If not, explain why. Show all of your work.



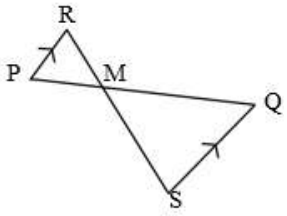
7. Are the two triangles shown below similar? If so, explain why **and provide a similarity statement**. If not, explain why. Show all of your work.



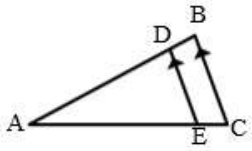
G-SRT.3 Learning Target: *I can establish the AA criterion by looking at multiple examples using similarity transformation of triangles.*

8. For each of the following, explain whether the two triangles are similar and **provide a similarity statement**, or not and why.

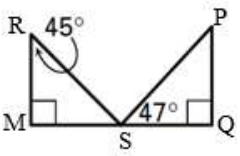
(a)



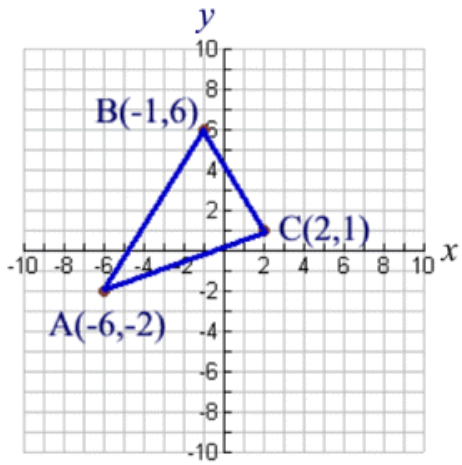
(b)



(c)



1. Use the triangle below,



(a) What are the coordinates of $\Delta A'B'C'$, which is the image of ΔABC under the transformation (x, y) → (y, - x)

A':_____ B':_____ C': _____

Explain how the lengths of the sides AND the measurements of the angles for this triangle compare with the original triangle.

_____

_____

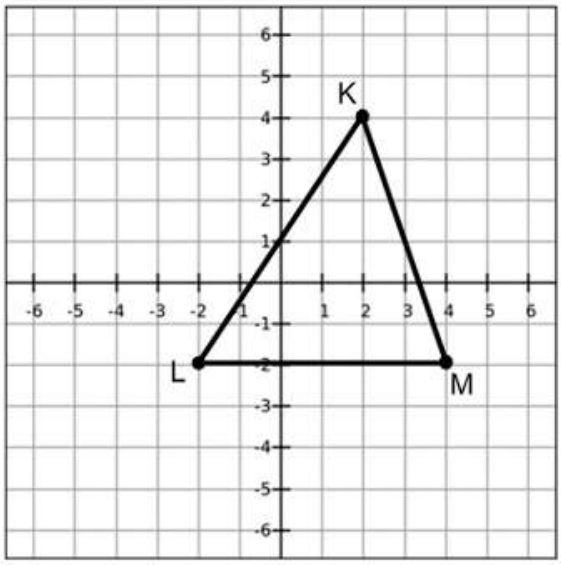
(b) What are the coordinates of $\Delta A'B'C'$, which is the image of ΔABC (*use the original figure again*) under the transformation $(x, y) \rightarrow (2x, 3y)$?

A: _____ B':_____ C': _____

Explain how the lengths of the sides and the measurements of the angles for this triangle compare with the original triangle.

_____

2. The coordinates of the vertices of a triangle are $K(2,4)$, $L(-2,-2)$, and $M(4,-2)$.



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_____

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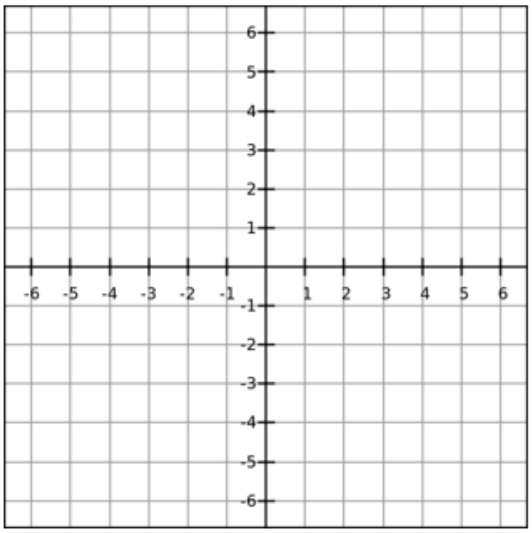
3. Graph $\overline{DE}$ with $D(-3,6)$ and $E(6,-6)$ on the coordinate plane below.

(a) Graph the dilation of $\overline{DE}$ using the origin as the center and a scale factor of $\frac{1}{3}$. Label the dilation $\overline{D'E'}$.

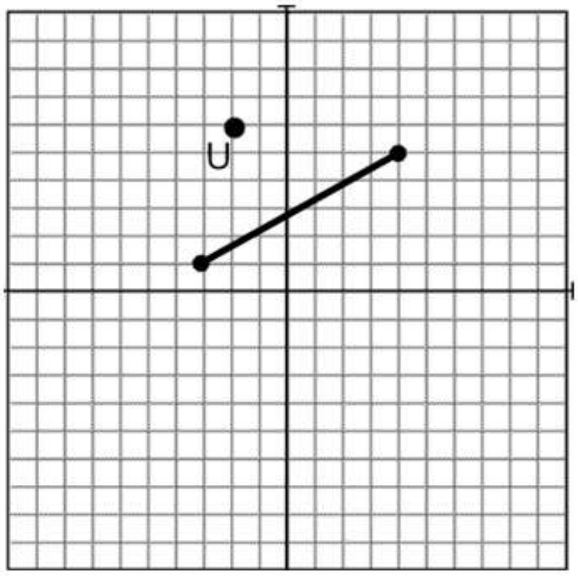


(b) Are the two segments parallel, perpendicular, coinciding, or none of the above? _____

(c) Find the length of the $\overline{DE}$ and $\overline{D'E'}$.

(d) Find the value of the ratio of the length of the dilated segment to the length of the original segment.

4. Given the segment shown below. If it is dilated about Point U, complete the following statements:



(a). The slopes of the segments will be _____, so the segments will be

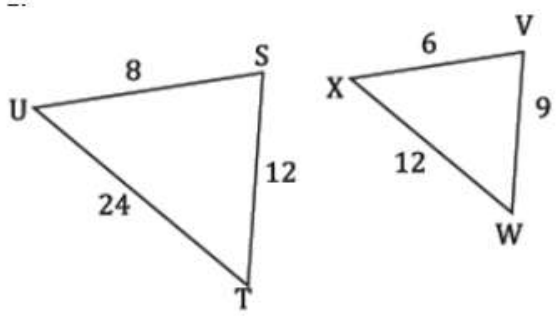
_____
(parallel, perpendicular, coinciding – choose one)

(b) The segments will be _____
(congruent, similar, neither – choose one)

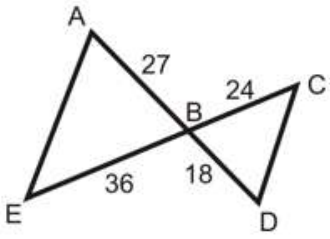
because _____

_____

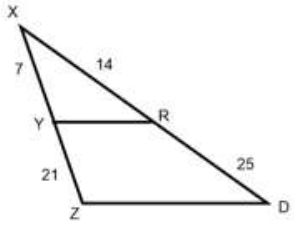
5. Are the two triangles below similar? If so, explain why **and provide a similarity statement**. If not, explain why. Show all of your work.



6. Are the two triangles shown below similar? If so, explain why **and provide a similarity statement**. If not, explain why. Show all of your work.



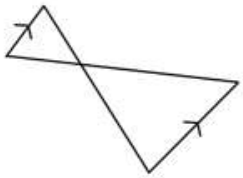
7. Are the two triangles shown below similar? If so, explain why **and provide a similarity statement**. If not, explain why. Show all of your work.



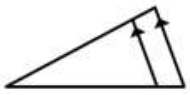
G-SRT.3 Learning Target: *I can establish the AA criterion by looking at multiple examples using similarity transformation of triangles.*

8. For each of the following, explain whether the two triangles are similar or not, and why.

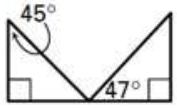
(a)



(b)



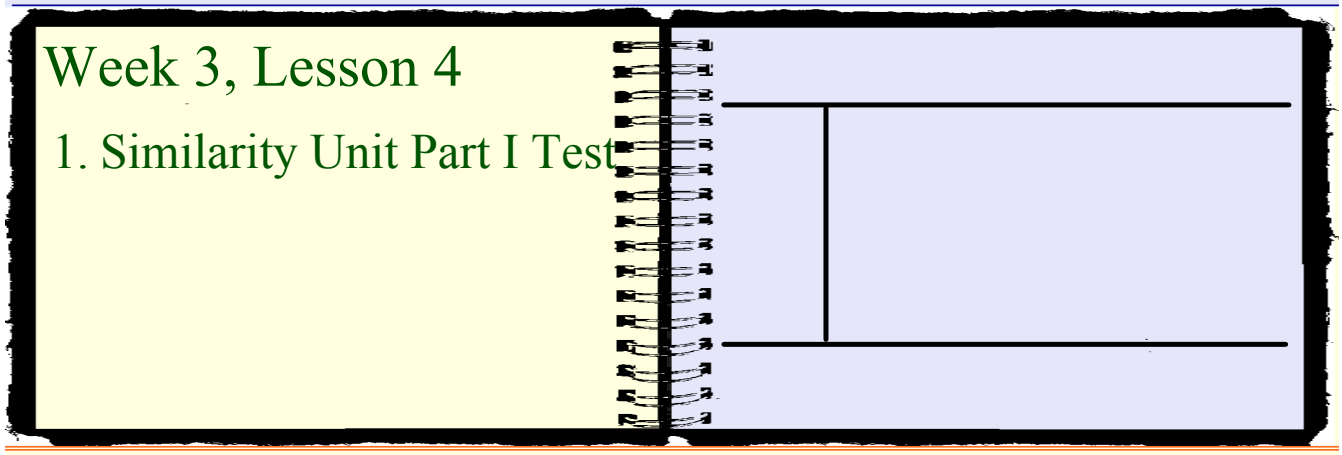
(c)



Essential Question Essential Question Essential Question Essential Question Essential Question Essential Question Essential Question

Week 3, Lesson 4

1. Similarity Unit Part I Test



Warm-up Warm-up Warm-up Warm-up Warm-up Warm-up Warm-up Warm-up Warm-up Warm-up Warm-up Warm-up Warm-up Warm-up Warm-up Warm-up Warm-u

Warm Up:

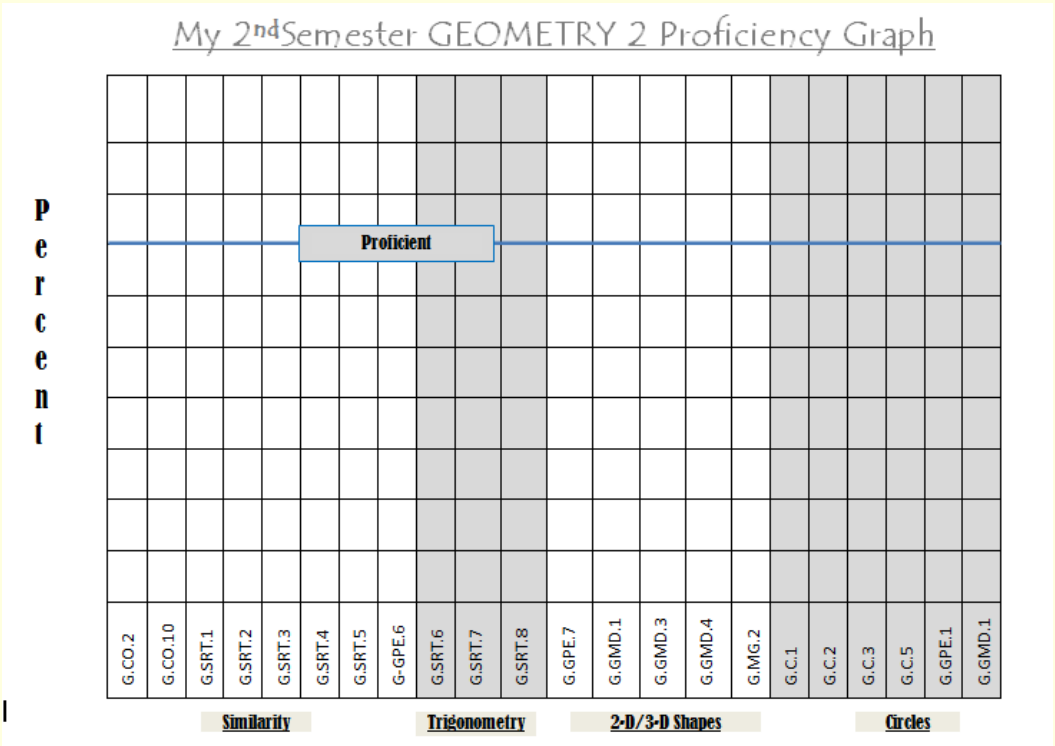
Essential Question Essential Question Essential Question Essential Question Essential Question Essential Question Essential Question

Week 3, Lesson 5

1. Unit 5 Project

Warm-up Warm-up Warm-up Warm-up Warm-up Warm-up Warm-up Warm-up Warm-up Warm-up Warm-up Warm-up Warm-up Warm-up Warm-up Warm-up Warm-u

Warm Up:



G-CO.10—Tutor MUST COMPLETE IN ORDER TO TAKE RECOVERY QUIZ
NAME: HOUR:

Geometry 2: Triangle Similarity Recovery vA
Name _____ Per ____

G.CO-10. Learning Target: *I can prove that the segment joining midpoints of two sides of a triangle is parallel to and half the length of the third side.*

Geometry Bingo!

Step 1: Take a piece of paper and fold it so you have 16 squares.

Step 2: Pick ANY 16 of the following terms. Write ONE term in EACH of your squares. They can be in any order you choose.

rectangle
parallelogram
isosceles triangle
dilation
Reflexive Property
vertical angles
translation
rotation
SSS
SAS
perpendicular bisector
perpendicular slopes
trapezoid
pythagorean theorem
midpoint
skew
angle
segment
supplementary
complementary
adjacent angles
parallel lines