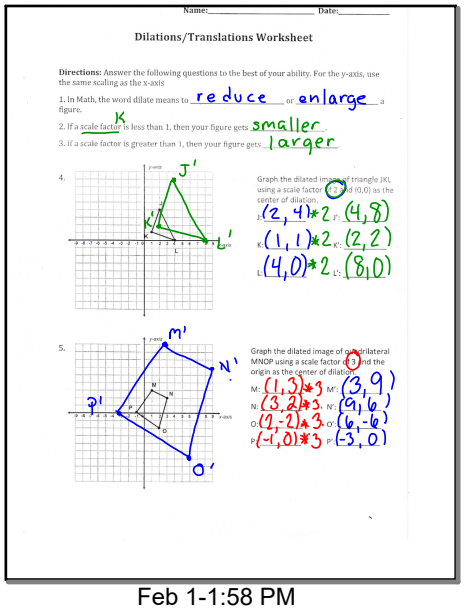
February 4, 2019, Monday

On the internet research "geometric dilation on a grid"
and copy an example.
State 2 observations about your dilation.

Jan 24-9:32 AM



Name:_____ Date:_____

Dilations/Translations Worksheet

Directions: Answer the following questions to the best of your ability. For the y-axis, use the same scaling as the x-axis

1. In Math, the word dilate means to reduce or enlarge a figure.
2. If a scale factor is less than 1, then your figure gets smaller
3. If a scale factor is greater than 1, then your figure gets larger

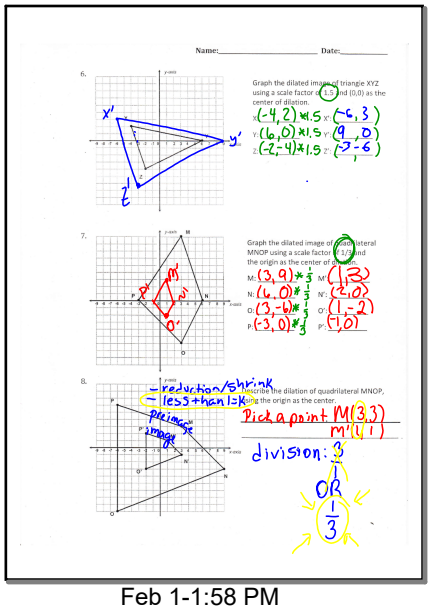
4. Graph the dilated image of triangle JKL using a scale factor of 2 and (0,0) as the center of dilation.

J(2, 4) * 2 J': (4, 8)
K(1, 1) * 2 K': (2, 2)
L(4, 0) * 2 L': (8, 0)

5. Graph the dilated image of quadrilateral MNOP using a scale factor of 3 and the origin as the center of dilation.

M: (1, 3) * 3 M': (3, 9)
N: (3, 2) * 3 N': (9, 6)
O: (2, -2) * 3 O': (6, -6)
P: (-1, 0) * 3 P': (-3, 0)

Feb 1-1:58 PM



Name:_____ Date:_____

6. Graph the dilated image of triangle XYZ using a scale factor of 1.5 and (0,0) as the center of dilation.

X(-4, 2) * 1.5 X': (-6, 3)
Y(6, 0) * 1.5 Y': (9, 0)
Z(-2, -4) * 1.5 Z': (-3, -6)

7. Graph the dilated image of quadrilateral MNOP using a scale factor of 1/3 and the origin as the center of dilation.

M: (3, 9) * 1/3 M': (1, 3)
N: (6, 0) * 1/3 N': (2, 0)
O: (3, -6) * 1/3 O': (1, -2)
P: (-3, 0) * 1/3 P': (-1, 0)

8. Describe the dilation of quadrilateral MNOP, using the origin as the center.

reduction/shrink
less than 1 = k
Pick a point: M(3,3) M'(1,1)
division: 3
OR 1/3

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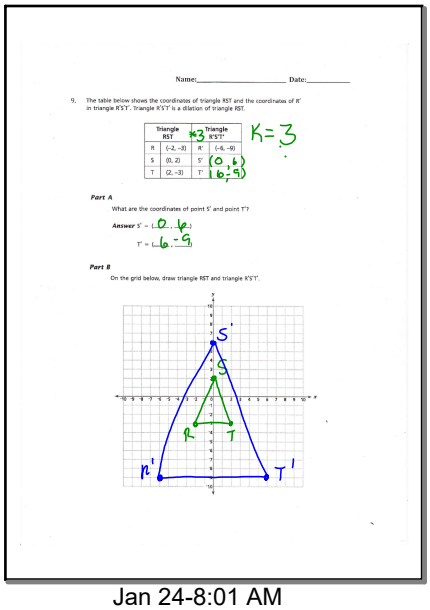


Name:_____ Date:_____

9. The table below shows the coordinates of triangle RST and the coordinates of R' in triangle R'S'T'. Triangle R'S'T' is a dilation of triangle RST.

Triangle RST		*3	Triangle R'S'T'	
R	(-2, -3)		R'	(-6, -9)
S	(0, 2)		S'	(0, 6)
T	(2, -3)		T'	(6, -9)

K = 3

Part A

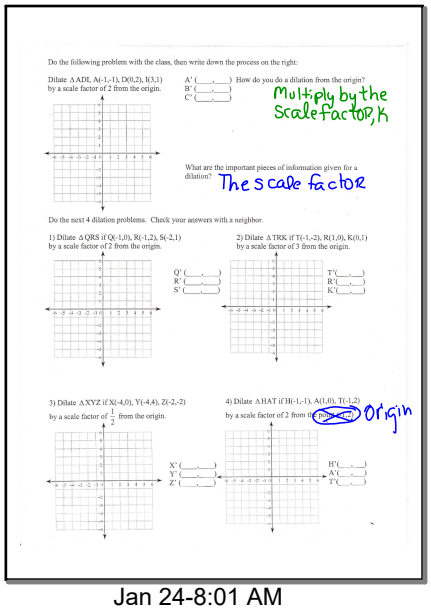
What are the coordinates of point S' and point T'?

Answer S' = (0, 6)
T' = (6, -9)

Part B

On the grid below, draw triangle RST and triangle R'S'T'.

Jan 24-8:01 AM



Do the following problem with the class, then write down the process on the right:

Dilate ΔADI, A(-1,-1), D(0,2), I(3,1) by a scale factor of 2 from the origin.

A' (____,____)
B' (____,____)
C' (____,____)

How do you do a dilation from the origin?
Multiply by the scale factor, k

What are the important pieces of information given for a dilation?
The scale factor

Do the next 4 dilation problems. Check your answers with a neighbor.

1) Dilate ΔQRS if Q(-1,0), R(-1,2), S(-2,1) by a scale factor of 2 from the origin.

Q' (____,____)
R' (____,____)
S' (____,____)

2) Dilate ΔTRK if T(-1,-2), R(1,0), K(0,1) by a scale factor of 3 from the origin.

T' (____,____)
R' (____,____)
K' (____,____)

3) Dilate ΔXYZ if X(-4,0), Y(-4,4), Z(-2,-2) by a scale factor of 1/2 from the origin.

X' (____,____)
Y' (____,____)
Z' (____,____)

4) Dilate ΔHAT if H(-1,-1), A(1,0), T(-1,2) by a scale factor of 2 from the point (0,0)

Origin

H' (____,____)
A' (____,____)
T' (____,____)

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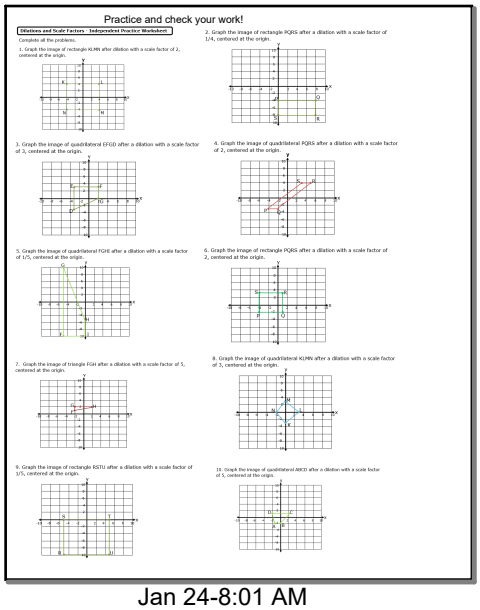

Practice and check your work!

Dilations and Scale Factors - Independent Practice Worksheet

Complete all the problems.

1. Graph the image of rectangle KLMN after dilation with a scale factor of 2, centered at the origin.

2. Graph the image of rectangle PQRS after a dilation with a scale factor of 1/4, centered at the origin.

3. Graph the image of quadrilateral EFGD after a dilation with a scale factor of 3, centered at the origin.

4. Graph the image of quadrilateral PQRS after a dilation with a scale factor of 2, centered at the origin.

5. Graph the image of quadrilateral FGHE after a dilation with a scale factor of 1/5, centered at the origin.

6. Graph the image of rectangle PQRS after a dilation with a scale factor of 2, centered at the origin.

7. Graph the image of triangle FGH after a dilation with a scale factor of 5, centered at the origin.

8. Graph the image of quadrilateral KLMN after a dilation with a scale factor of 3, centered at the origin.

9. Graph the image of rectangle RSTU after a dilation with a scale factor of 1/3, centered at the origin.

10. Graph the image of quadrilateral ABCD after a dilation with a scale factor of 1, centered at the origin.

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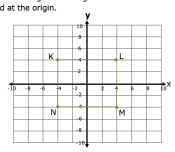
Name _____ Date _____

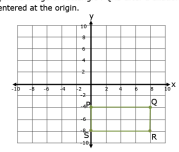
Dilations and Scale Factors - Independent Practice Worksheet

Complete all the problems.

1. Graph the image of rectangle KLMN after dilation with a scale factor of 2, centered at the origin.



2. Graph the image of rectangle PQRS after a dilation with a scale factor of 1/4, centered at the origin.



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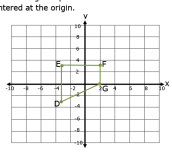
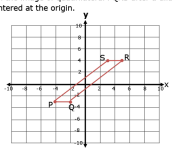
Name _____ Date _____

3. Graph the image of quadrilateral EFGD after a dilation with a scale factor of 3, centered at the origin.



4. Graph the image of quadrilateral PQRS after a dilation with a scale factor of 2, centered at the origin.



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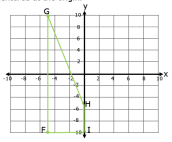
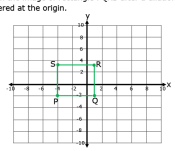
Name _____ Date _____

5. Graph the image of quadrilateral FGHI after a dilation with a scale factor of 1/5, centered at the origin.



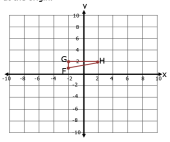
6. Graph the image of rectangle PQRS after a dilation with a scale factor of 2, centered at the origin.



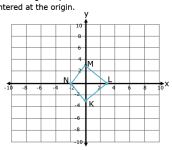
Jan 31-8:08 AM

Name _____ Date _____

7. Graph the image of triangle FGH after a dilation with a scale factor of 5, centered at the origin.



8. Graph the image of quadrilateral KLMN after a dilation with a scale factor of 3, centered at the origin.



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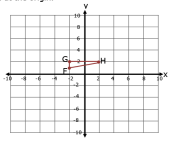
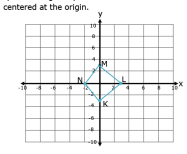
Name _____ Date _____

7. Graph the image of triangle FGH after a dilation with a scale factor of 5, centered at the origin.



8. Graph the image of quadrilateral KLMN after a dilation with a scale factor of 3, centered at the origin.



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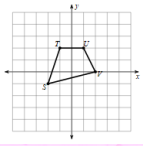
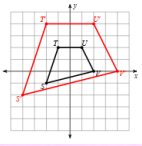
February 5, 2019, Tuesday

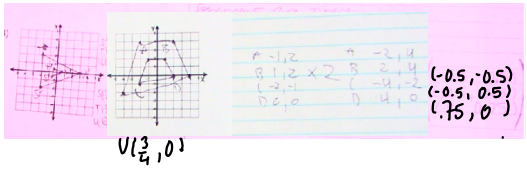
e using the transformation given.

2) dilation of 2 about the origin



2) dilation of 2 about the origin





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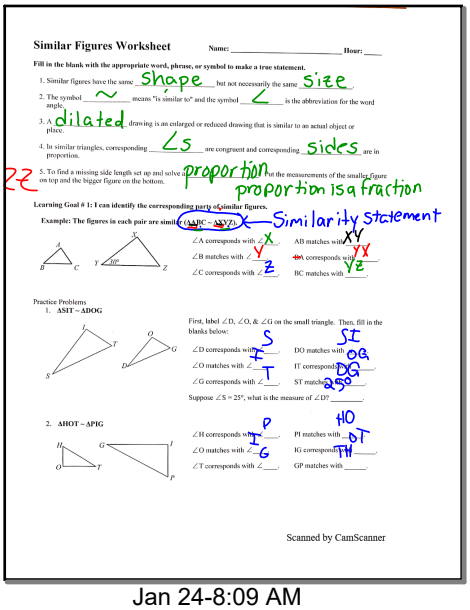
Similar Figures Worksheet

Name: _____ Hour: ____

Fill in the blank with the appropriate word, phrase, or symbol to make a true statement.

1. Similar figures have the same Shape but not necessarily the same Size
2. The symbol ~ means "is similar to" and the symbol ∠ is the abbreviation for the word angle
3. A dilated drawing is an enlarged or reduced drawing that is similar to an actual object or place.
4. In similar triangles, corresponding ∠s are congruent and corresponding Sides are in proportion.
5. To find a missing side length set up and solve a proportion that the measurements of the smaller figure on top and the bigger figure on the bottom.

proportion is a fraction

Learning Goal # 1: I can identify the corresponding parts of similar figures.

Example: The figures in each pair are similar (ΔABC ~ ΔXYZ). Similarity Statement

∠A corresponds with ∠X, AB matches with XY
∠B matches with ∠Y, BC corresponds with YZ
∠C corresponds with ∠Z, AC matches with XZ

Practice Problems

1. ΔSIT ~ ΔDOG

First, label ∠D, ∠O, & ∠G on the small triangle. Then, fill in the blanks below:

∠D corresponds with ∠S, DO matches with SI
∠O matches with ∠I, IT corresponds with OG
∠G corresponds with ∠T, ST matches with DG

Suppose ∠S = 25°, what is the measure of ∠D? _____

2. ΔHOT ~ ΔPIG

∠H corresponds with ∠P, PI matches with HO
∠O matches with ∠I, IG corresponds with OT
∠T corresponds with ∠G, GP matches with HT

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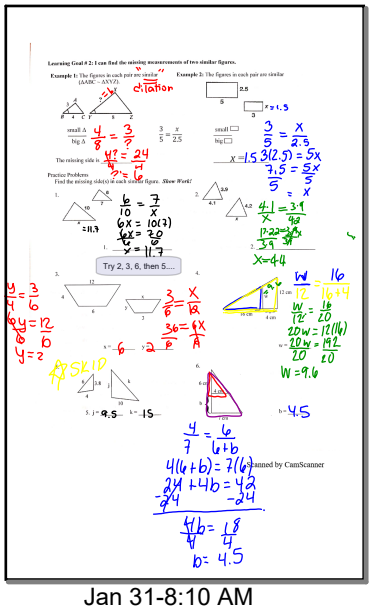
Learning Goal # 2: I can find the missing measurements of two similar figures.

Example 1: The figures in each pair are similar (ΔABC ~ ΔXYZ). dilation

Example 2: The figures in each pair are similar

Practice Problems

Find the missing side(s) in each similar figure. Show Work!

Try 2, 3, 6, then 5....

SKIP

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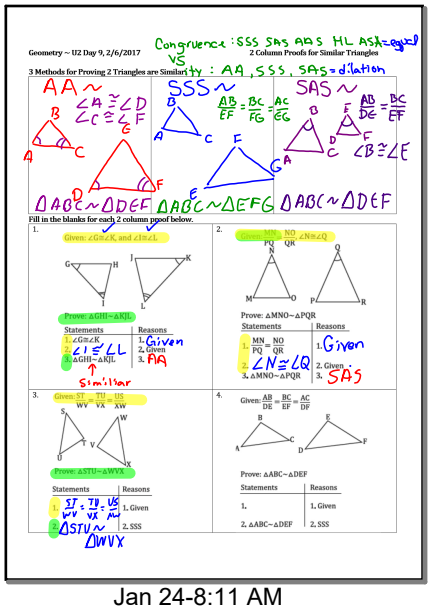
Geometry ~ U2 Day 9, 2/6/2017

2 Column Proofs for Similar Triangles

Congruence: SSS SAS ASA HL ASA=AAS

vs

Similarity: AA, SSS, SAS = dilation

3 Methods for Proving 2 Triangles are Similar

AA ~ ∠A ≅ ∠D, ∠C ≅ ∠F — ΔABC ~ ΔDEF

SSS ~ AB/EF = BC/FG = AC/EG — ΔABC ~ ΔEFG

SAS ~ AB/DE = BC/EF, ∠B ≅ ∠E — ΔABC ~ ΔDEF

Fill in the blanks for each 2 column proof below.

1. Given: ∠G ≅ ∠K and ∠H ≅ ∠L

Prove: ΔGHI ~ ΔKJL

Statements	Reasons
1. ∠G ≅ ∠K	1. Given
2. ∠I ≅ ∠L	2. Given
3. ΔGHI ~ ΔKJL	3. AA

Similar

2. Given: MN/PQ = NO/QR, ∠N ≅ ∠Q

Prove: ΔMNO ~ ΔPQR

Statements	Reasons
1. MN/PQ = NO/QR	1. Given
2. ∠N ≅ ∠Q	2. Given
3. ΔMNO ~ ΔPQR	3. SAS

3. Given: ST/WV = TU/VX = US/XW

Prove: ΔSTU ~ ΔWVX

Statements	Reasons
1. ST/WV = TU/VX = US/XW	1. Given
2. ΔSTU ~ ΔWVX	2. SSS

4. Given: AB/DE = BC/EF = AC/DF

Prove: ΔABC ~ ΔDEF

Statements	Reasons
1.	1. Given
2. ΔABC ~ ΔDEF	2. SSS

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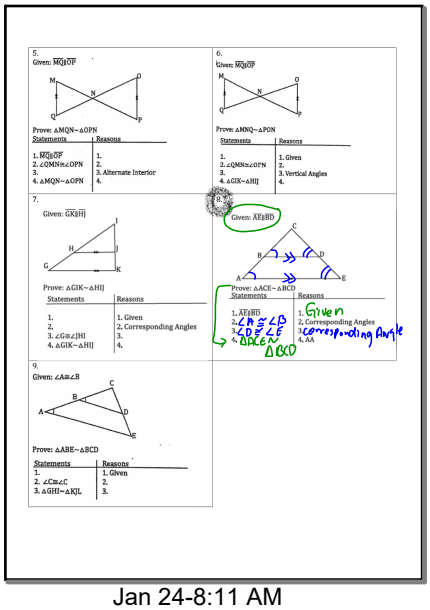
5. Given: MQ ⊥ OP

Prove: ΔMQN ~ ΔOPN

Statements	Reasons
1. MQ ⊥ OP	1.
2. ∠QMN ≅ ∠OPN	2.
3.	3. Alternate Interior
4. ΔMQN ~ ΔOPN	4.

6. Given: MQ ⊥ OP

Prove: ΔMNQ ~ ΔPON

Statements	Reasons
1.	1. Given
2. ∠QMN ≅ ∠OPN	2.
3.	3. Vertical Angles
4. ΔGIK ~ ΔHIJ	4.

7. Given: GK ∥ HJ

Prove: ΔGIK ~ ΔHIJ

Statements	Reasons
1.	1. Given
2.	2. Corresponding Angles
3. ∠GKI ≅ ∠HJI	3.
4. ΔGIK ~ ΔHIJ	4.

8. Given: AE ∥ BD

Prove: ΔACE ~ ΔBCD

Statements	Reasons
1. AE ∥ BD	1. Given
2. ∠A ≅ ∠B	2. Corresponding Angles
3. ∠DEC ≅ ∠E	3. Corresponding Angle
4. ΔACE ~ ΔBCD	4. AA

9. Given: ∠A ≅ ∠B

Prove: ΔABE ~ ΔBCD

Statements	Reasons
1.	1. Given
2. ∠C ≅ ∠C	2.
3. ΔGHI ~ ΔKJL	3.

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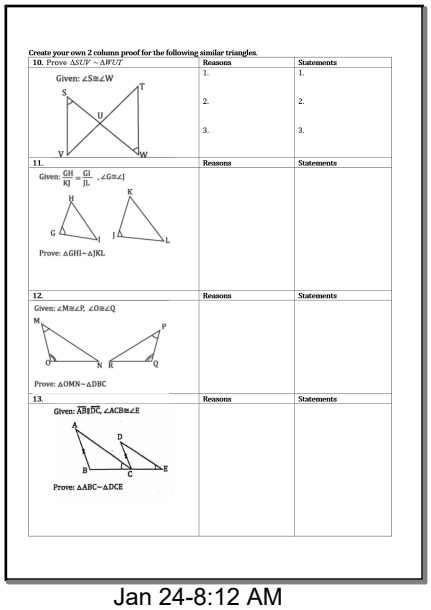
Create your own 2 column proof for the following similar triangles.

10. Prove ΔSUV ~ ΔWUT

Given: ∠S ≅ ∠W

Statements	Reasons
1.	1.
2.	2.
3.	3.

11. Given: GH/KJ = GI/JL, ∠G ≅ ∠J

Prove: ΔGHI ~ ΔJKL

Statements	Reasons

12. Given: ∠M ≅ ∠P, ∠O ≅ ∠Q

Prove: ΔOMN ~ ΔDBC

Statements	Reasons

13. Given: AB ⊥ DC, ∠ACB ≅ ∠E

Prove: ΔABC ~ ΔDCE

Statements	Reasons

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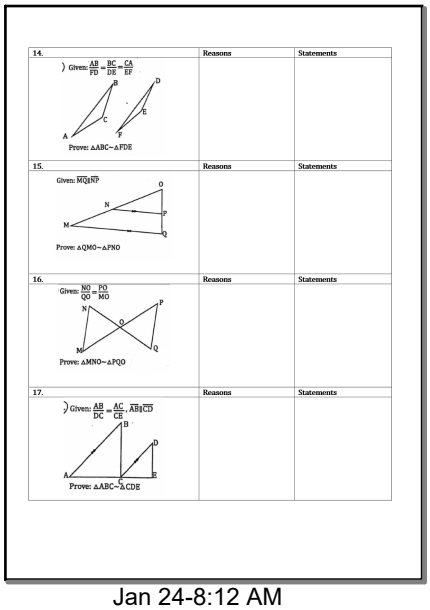
14. Given: AB/FD = BC/DE = CA/EF

Prove: ΔABC ~ ΔFDE

Statements	Reasons

15. Given: MQ ∥ NP

Prove: ΔQMO ~ ΔPNO

Statements	Reasons

16. Given: NO/QO = PO/MO

Prove: ΔMNO ~ ΔPQO

Statements	Reasons

17. Given: AB/DC = AC/CE, AB ⊥ CD

Prove: ΔABC ~ ΔCDE

Statements	Reasons

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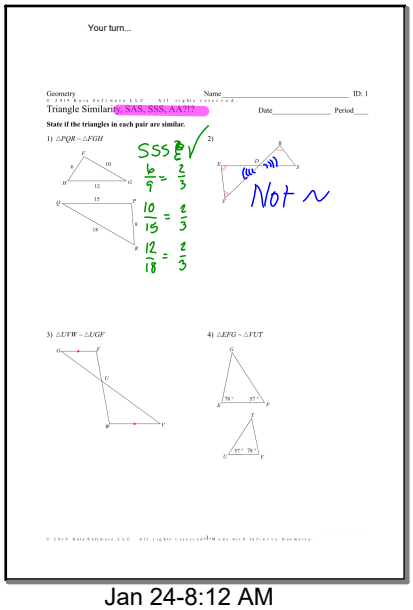

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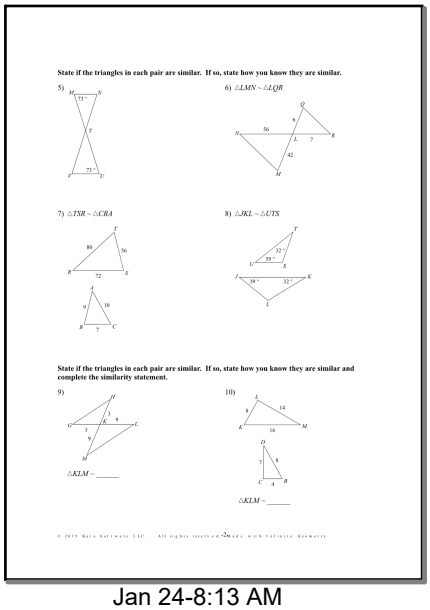

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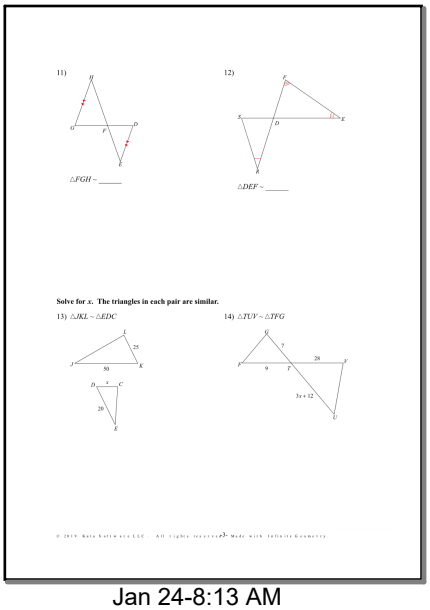

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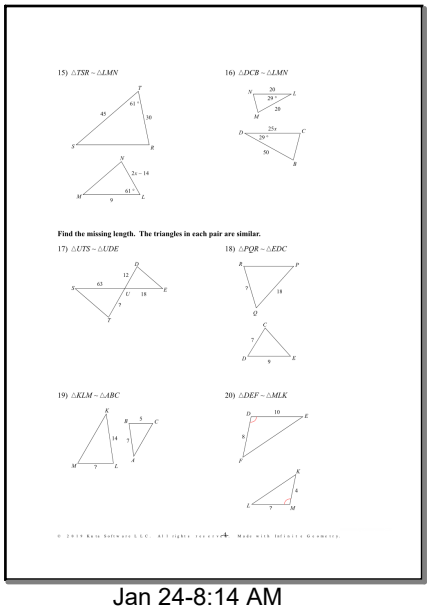

Jan 24-8:14 AM

February 6, 2019, Wednesday

What are the 3 ways to prove triangle similarity?
Write an example of a set of triangles using one of the ways...

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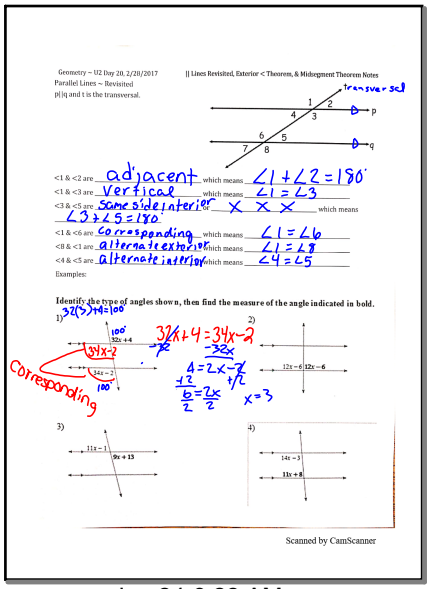

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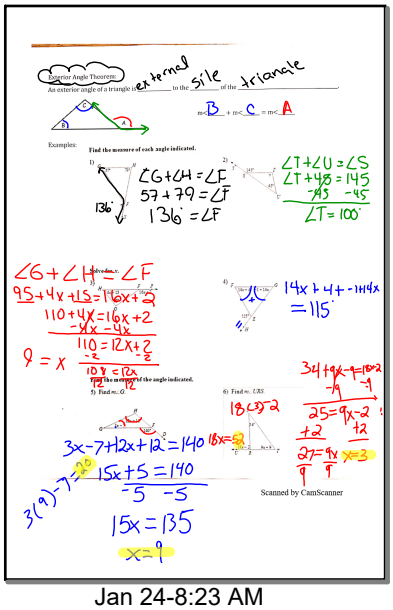

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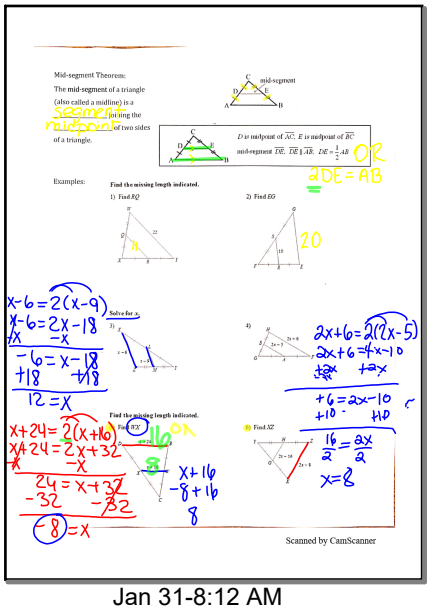

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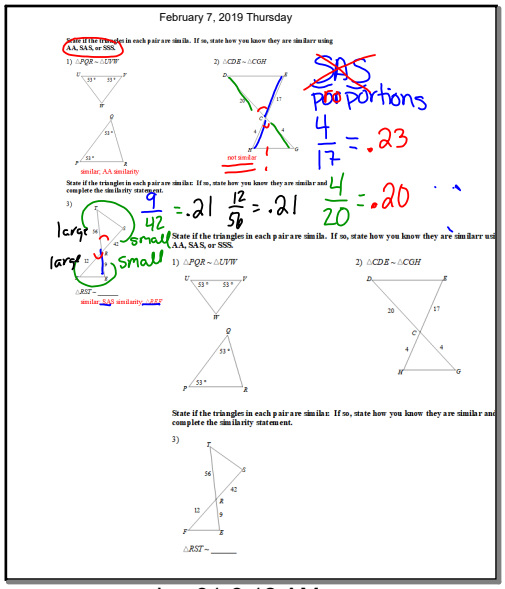

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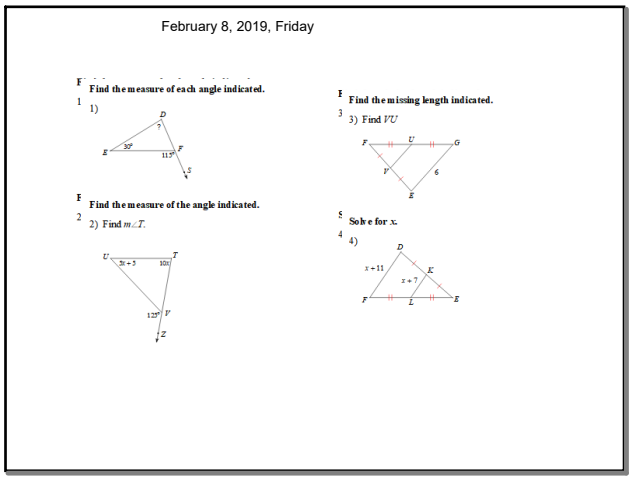
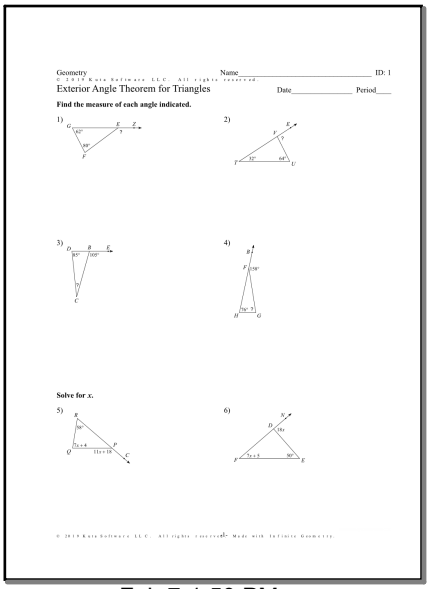


Feb 7-1:48 PM



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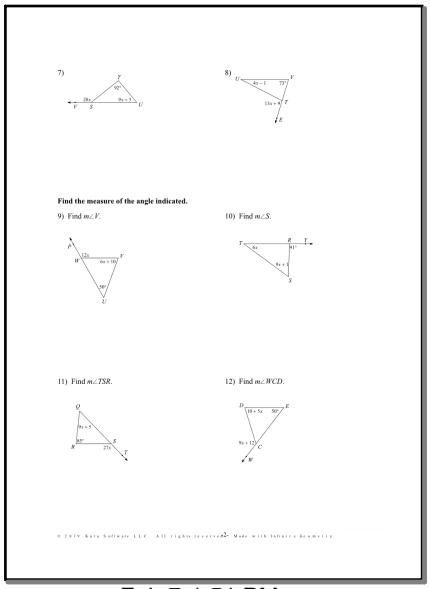

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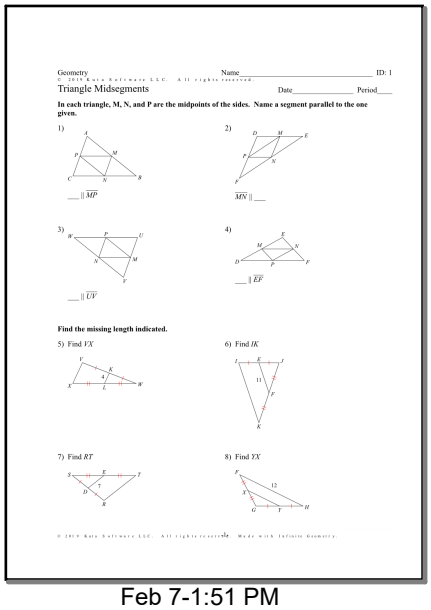


Geometry Name_____ ID: 1

Triangle Midsegments Date_____ Period____

In each triangle, M, N, and P are the midpoints of the sides. Name a segment parallel to the one given.

1) ___ || $\overline{MP}$

2) $\overline{MN}$ || ___

3) ___ || $\overline{UV}$

4) ___ || $\overline{EF}$

Find the missing length indicated.

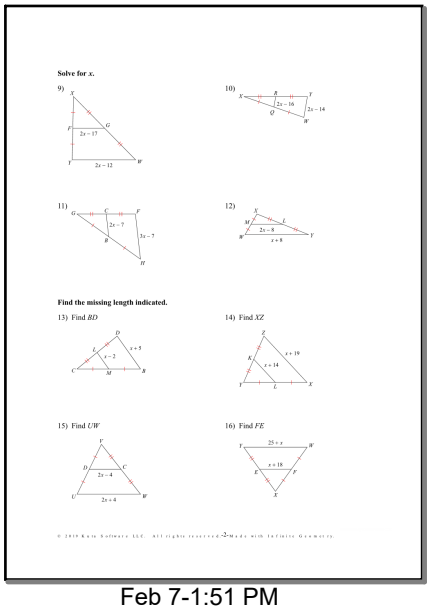
5) Find VX

6) Find IK

7) Find RT

8) Find YX

Feb 7-1:51 PM



Solve for x.

9)

10)

11)

12)

Find the missing length indicated.

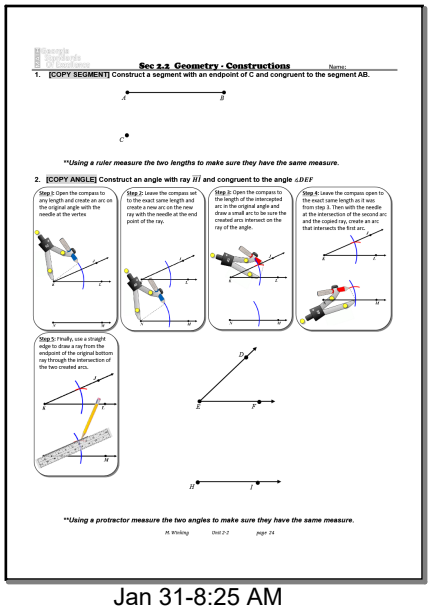
13) Find BD

14) Find XZ

15) Find UW

16) Find FE

Feb 7-1:51 PM



Sec 2.2 Geometry - Constructions Name:

1. **[COPY SEGMENT]** Construct a segment with an endpoint of C and congruent to the segment AB.

***Using a ruler measure the two lengths to make sure they have the same measure.**

2. **[COPY ANGLE]** Construct an angle with ray $\overrightarrow{HI}$ and congruent to the angle $\angle DEF$

Step 1: Open the compass to any length and create an arc on the original angle with the needle at the vertex

Step 2: Leave the compass set to the exact same length and create a new arc on the new ray with the needle at the end point of the ray.

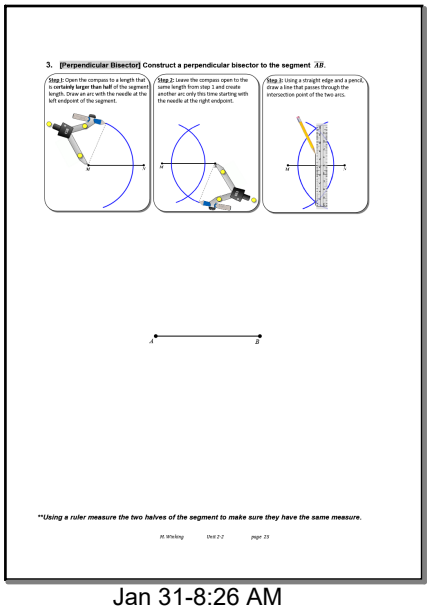
Step 3: Open the compass to the length of the intercepted arc in the original angle and draw a small arc to be sure the created arcs intersect on the ray of the angle.

Step 4: Leave the compass open to the exact same length as it was from step 3. Then with the needle at the intersection of the second arc and the copied ray, create an arc that intersects the first arc.

Step 5: Finally, use a straight edge to draw a ray from the endpoint of the original bottom ray through the intersection of the two created arcs.

***Using a protractor measure the two angles to make sure they have the same measure.**

Jan 31-8:25 AM



3. **[Perpendicular Bisector]** Construct a perpendicular bisector to the segment $\overline{AB}$.

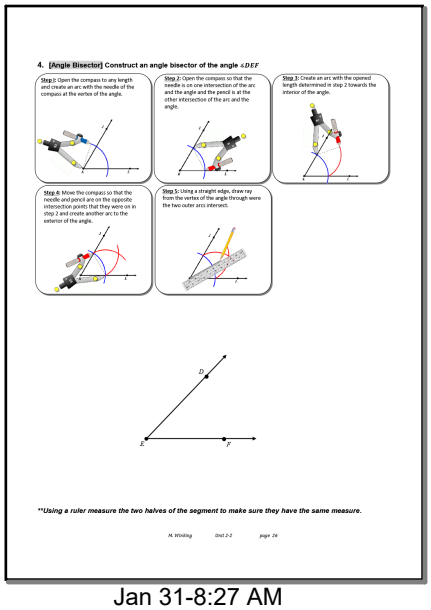
Step 1: Open the compass to a length that is **certainly larger than half** of the segment's length. Draw an arc with the needle at the left endpoint of the segment.

Step 2: Leave the compass open to the same length from step 1 and create another arc only this time starting with the needle at the right endpoint.

Step 3: Using a straight edge and a pencil, draw a line that passes through the intersection point of the two arcs.

***Using a ruler measure the two halves of the segment to make sure they have the same measure.**

Jan 31-8:26 AM



4. **[Angle Bisector]** Construct an angle bisector of the angle $\angle DEF$

Step 1: Open the compass to any length and create an arc with the needle of the compass at the vertex of the angle.

Step 2: Open the compass so that the needle is on one intersection of the arc and the angle and the pencil is at the other intersection of the arc and the angle.

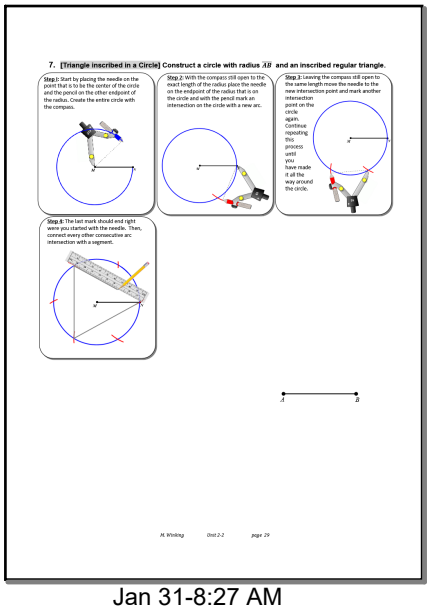
Step 3: Create an arc with the opened length determined in step 2 towards the interior of the angle.

Step 4: Move the compass so that the needle and pencil are on the opposite intersection points that they were on in step 2 and create another arc to the exterior of the angle.

Step 5: Using a straight edge, draw ray from the vertex of the angle through were the two outer arcs intersect.

***Using a ruler measure the two halves of the segment to make sure they have the same measure.**

Jan 31-8:27 AM



7. **[Triangle inscribed in a Circle]** Construct a circle with radius $\overline{AB}$ and an inscribed regular triangle.

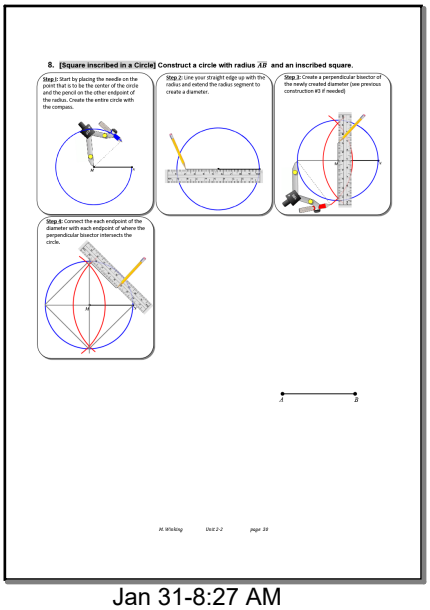
Step 1: Start by placing the needle on the point that is to be the center of the circle and the pencil on the other endpoint of the radius. Create the entire circle with the compass.

Step 2: With the compass still open to the exact length of the radius place the needle on the endpoint of the radius that is on the circle and with the pencil mark an intersection on the circle with a new arc.

Step 3: Leaving the compass still open to the same length move the needle to the new intersection point and mark another intersection point on the circle again. Continue repeating this process until you have made it all the way around the circle.

Step 4: The last mark should end right were you started with the needle. Then, connect every other consecutive arc intersection with a segment.

Jan 31-8:27 AM



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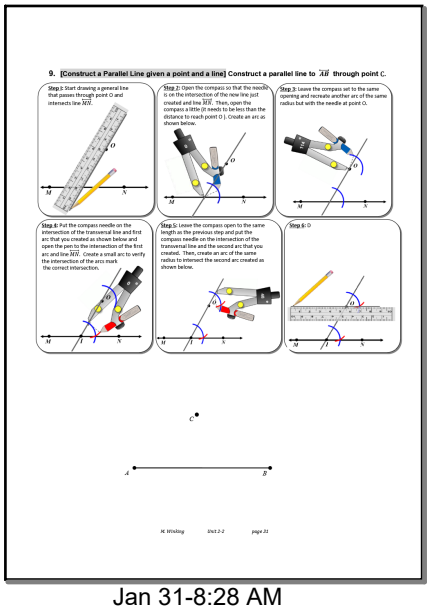
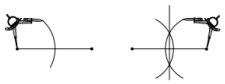


Jan 31-8:28 AM

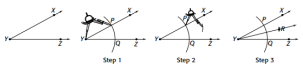
February 8, 2019, Friday

5. What does this construction show?



A. congruent segments
B. perpendicular bisector
C. bisected angle
D. parallel lines

6. What does this construction show?



A. congruent segments
B. perpendicular bisector
C. bisected angle
D. parallel lines

Jan 31-8:28 AM

https://www.mathopenref.com/tocs/constructionstoc.html

Lines

- Copy a line segment
- Sum of line segments
- Difference of two line segments
- Perpendicular bisector of a line segment
- Divide a line segment into n equal segments
- Perpendicular to a line at a point on the line
- Perpendicular to a line from an external point
- Perpendicular to a ray at its endpoint
- A parallel to a line through a point (angle copy method)
- A parallel to a line through a point (rhombus method)
- A parallel to a line through a point (translated triangle method)

Angles

- Copy an angle
- Bisect an angle
- Construct a 30° angle
- Construct a 45° angle
- Construct a 60° angle
- Construct a 90° angle (right angle)
- Sum of n angles
- Difference of two angles
- Supplementary angle
- Complementary angle
- Constructing 75° 105° 120° 135° 150° angles and more

Triangles

- Copy a triangle
- Triangle, given all 3 sides (SSS)
- Triangle, given one side and adjacent angles (ASA)
- Triangle, given two sides and included angle (SAS)
- Triangle, given two sides and non-included angle (AAS)
- Isosceles Triangle, given base and one side
- Isosceles Triangle, given base and altitude
- Isosceles Triangle, given leg and apex angle
- 30-60-90 right triangle given the hypotenuse
- Equilateral Triangle
- Midsegment of a Triangle
- Medians of a Triangle
- Altitudes of a Triangle
- Altitudes of a Triangle (outside case)

Polygons

- Square given one side
- Square inscribed in a circle
- Hexagon given one side
- Equilateral triangle inscribed in a circle
- Hexagon inscribed in a circle
- Pentagon inscribed in a circle

Jan 31-8:41 AM

Quiz like EOC problems for constructions....

Jan 31-9:06 AM