Name:	Semester 1 Final Review Guide
Date:	Geometry 2016 - 2017
Hour:	Due on your Final Exam Day

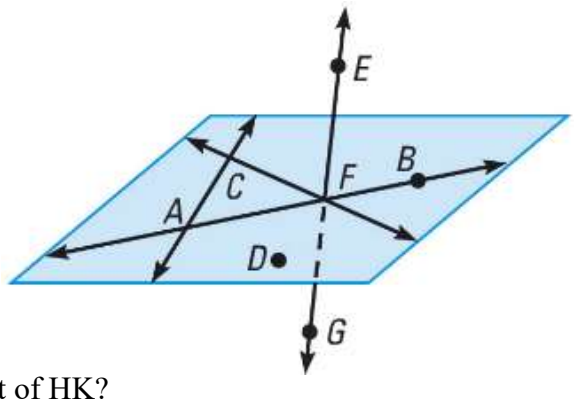
UNIT 1: GEOMETRY BASICS

Key vocabulary words and ideas:

- Midpoint formula (number line)
- Distance formula (number line)
- Midpoint formula (x, y)
- Distance formula (x, y)
- Segment addition postulate
- Angle addition postulate
- Supplementary
- Complementary
- Linear pair
- Vertical angles
- Segment bisector
- Angle bisector
- Congruent
- Ray
- Right angle
- Adjacent (i.e. adjacent ray)
- Parallel segments
- Perpendicular segments
- Skew segments
- Coplanar
- Collinear
- Opposite rays
- Planes (how many letters used to name one)

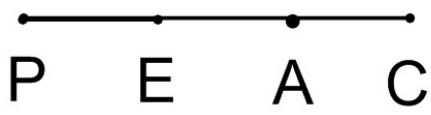
Practice problems

#1-4: Use the image on the right to answer the following:

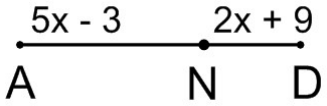


1. Name 3 points that are collinear.
2. Points A, C, D, and ____ are coplanar.
3. Point E lines on line _____
4. $\overrightarrow{FE}$ and _____ are opposite rays.
5. On a real number line, the coordinate point H is -124 and the coordinate point K is -3. What is the coordinate of the midpoint of HK?
6. On a real number line, Point M is at -102 and Point K is at 24. What is the distance between points M and K?
7. What is the length between the points (7, 5) and (12, 1)?
8. What is the midpoint between the points (-2, 8) and (3, -1) on the (x, y) coordinate plane?
9. Point A is the midpoint of $\overline{GH}$. Calculate the value of x is GA = 10x + 15 and AH = 12x – 13? (Hint: draw a diagram)

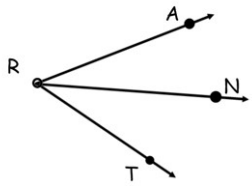
10. If PA= 24, PC= 50, and E is the midpoint of PA, how long is EC?



11. In the diagram, N is the midpoint of $\overline{AD}$. Find the length of $\overline{AD}$.



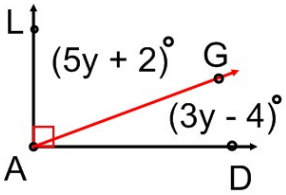
12. In the figure below, which ray is adjacent to ∠TRN and ∠ARN?



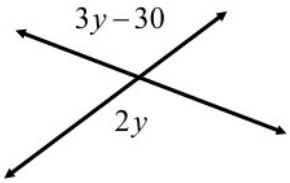
13. Two angles that add up to 90° are _____.

14. Two angles that add up to 180° are _____.

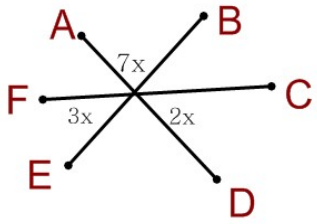
15. Find the value of y and m∠DAG:



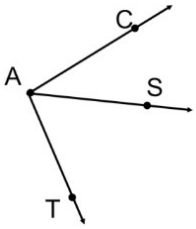
16. Find the value of y



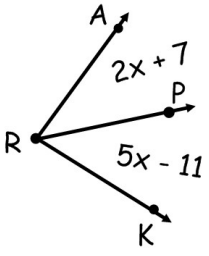
17. What is the value of x?



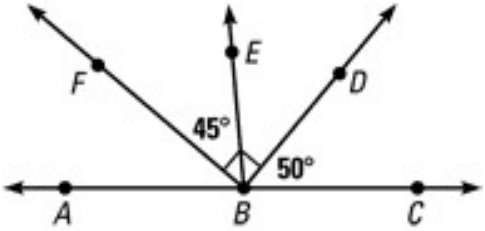
18. In the diagram below, $\overrightarrow{AS}$ bisects ∠CAT.
∠CAS = 2x + 6 and ∠SAT = 4x – 3.
What is the angle measure of ∠CAT?



19. Given m∠ARK = 80°, m∠ARP = 2x + 7, m∠PRK = 5x – 11, find the value of x.



20. Use the figure to determine the measure of ∠EBC.



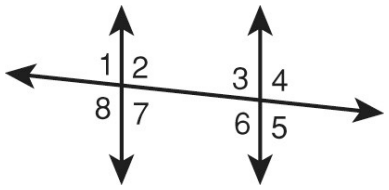
UNIT 2: PARALLEL LINES & TRANSVERSALS

Key vocabulary words and ideas

- Corresponding angles
- Vertical angles
- Linear pair
- Alternate interior <s
- Alternate exterior <s
- Consecutive interior <s
- Perpendicular Lines
- Skew Lines
- Parallel Lines
- Transversal

*Know which ones are congruent, which are supplementary, and which are complementary

Practice problems



1. Name a pair of…

a. Corresponding angles b. Vertical angles

c. Linear pair d. Alternate interior angles

e. Alternate exterior angles f. Consecutive interior angles

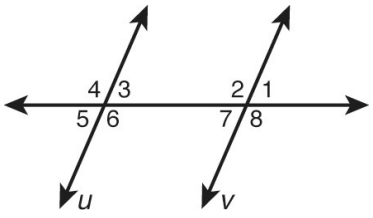
#2-4: Complete the following statements with Congruent, Supplementary, or Complementary.

2. Linear Pairs are _____.

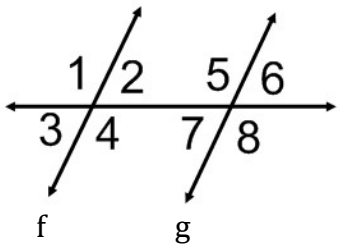
3. When lines are ||, Corresponding Angles are _____.

4. When lines are ||, Alternate Exterior ∠'s are _____.

5.In the figure below, if line u || line v, what what angles are ≅ to ∠3?

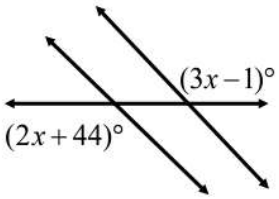


6. In the figure, if line f || line g and m∠4 = 62°, is m∠6?

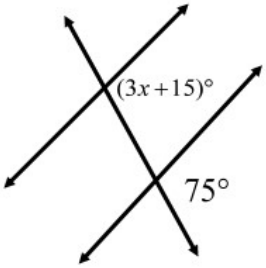


#7-9: Write the equation only (no need to solve) that would be used to solve for x:

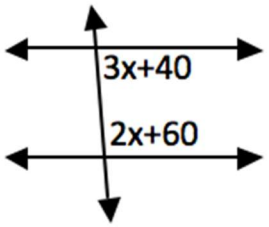
7.



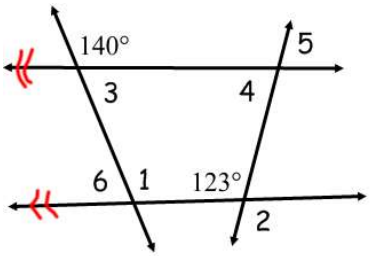
8.



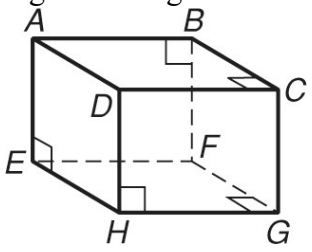
9.



10. Find the measures of angles 1-5:



11. Classify the following sides as parallel, perpendicular, or skew lines using the image to the right.
    a. $\overline{DH}$ *and* $\overline{CG}$
    b. $\overline{BF}$ *and* $\overline{HG}$
    c. $\overline{AD}$ *and* $\overline{DC}$



UNIT 3: TRIANGLES

Key vocabulary words and ideas:

- Equilateral triangle
- Isosceles triangle
- Scalene triangle
- Acute triangle
- Obtuse triangle
- Equiangular triangle
- Right triangle
- Interior angle sum theorem
- Exterior angle sum theorem
- Triangle inequality theorem
- SSS congruence theorem
- SAS congruence theorem
- ASA congruence theorem
- Congruence Statement
- Transitive Property
- Reflexive Property

Practice problems

1. Given the congruency statement $\Delta ABC \cong \Delta XYZ$, which angle in ΔABC is congruent to ∠Z?

2. Which property is represented by the following statement? $\overline{AB} \cong \overline{AB}$

3. Which property is represented by the following statement? *If* $\angle 1 \cong \angle 2$ *and* $\angle 2 \cong \angle 3$, *then* $\angle 1 \cong \angle 3$.

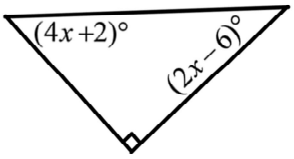
4. Which of the following side lengths can form a triangle? CIRCLE THEM.

A. 7 cm, 2 cm, 9 cm	B. 11 cm, 22 cm, 15 cm	C. 2 cm, 2 cm, 2 cm
D. 9 cm, 4 cm, 12 cm	E. 9 cm, 4 cm, 13 cm	F. 9 cm, 4 cm, 14 cm

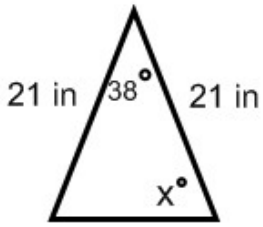
5. If one side of a triangle had the side lengths of 3 inches and 9 inches:
    a. write an inequality to show the possibilities for the 3rd side length of the triangle.

    b. Write 1 potential length for the triangle's 3rd side.

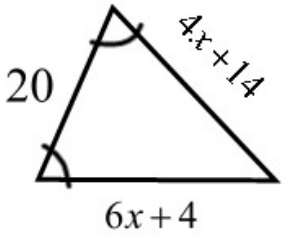
6. Calculate the value of x.



7. What is the value of x?

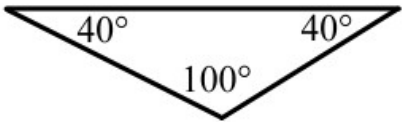


8. Write the equation used to solve for x.

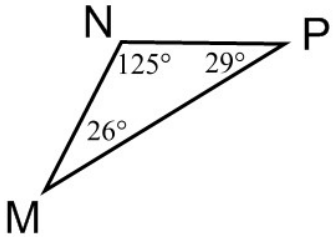


9. Classify the following triangles by their angles and sides.

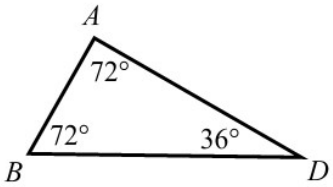
a.



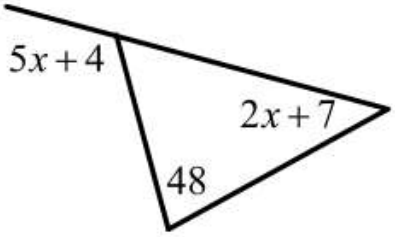
b.



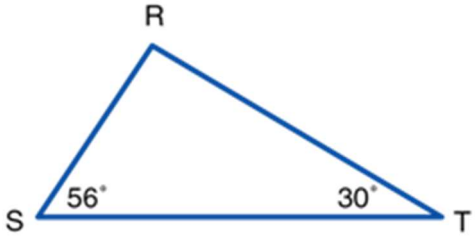
c.



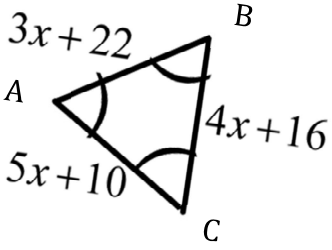
10. Calculate the value of x.



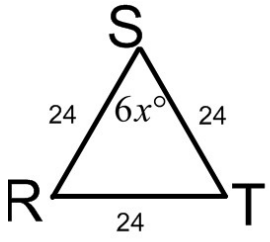
11. Using the angle measures, state the sides in order of smallest to longest.



12. What is the length of side AB?

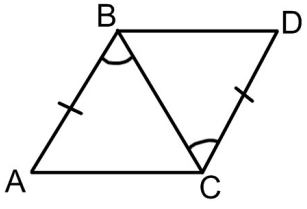


13. Write an equation that can be used to successfully calculate x.

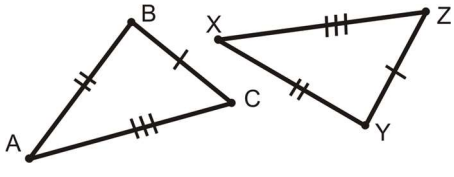


14. Identify the congruence postulates used to prove the two triangles congruent (SSS, SAS, ASA).

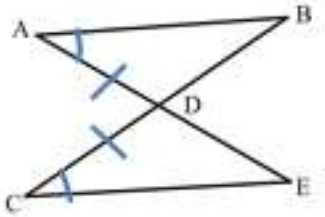
a.



b.

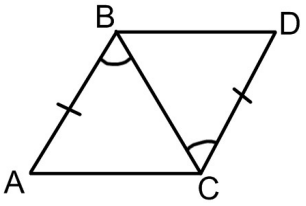


c.



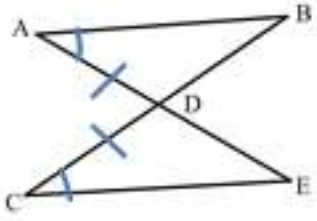
15. Complete the proof that justifies why the two triangles are congruent using a triangle congruence postulate (SSS, SAS, ASA).

a.



Statements	Reasons
1. _____ ≅ _____	1. _____
2. _____ ≅ _____	2. _____
3. _____ ≅ _____	3. _____
4. Therefore: ΔBDA ≅ _____	4. By the _____ Postulate

b.



Statements	Reasons
1. _____ ≅ _____	1. _____
2. _____ ≅ _____	2. _____
3. _____ ≅ _____	3. _____
4. Therefore: ΔBDA ≅ _____	4. By the _____ Postulate

UNIT 4: COORDINATE GEOMETRY

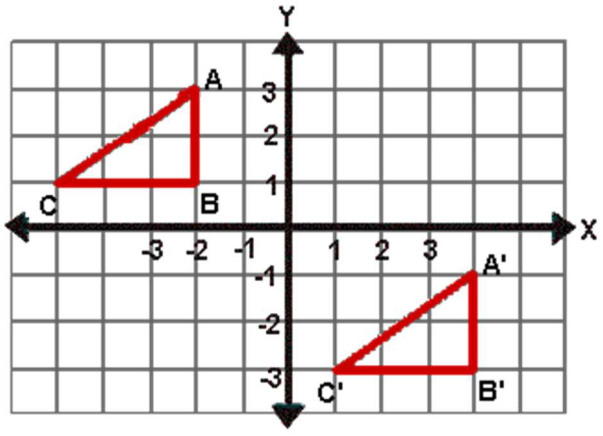
Key vocabulary words and main ideas

- Midpoint Formula
- Distance Formula
- Transformation
- Translation
- Reflection
- Rotation
- Composite Transformation

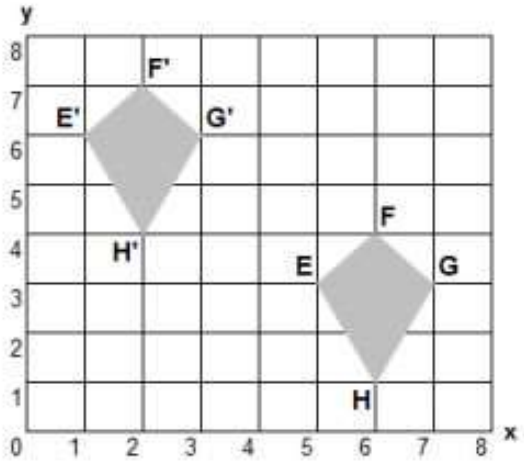
Practice problems

1. Write the rule for the transformations below:

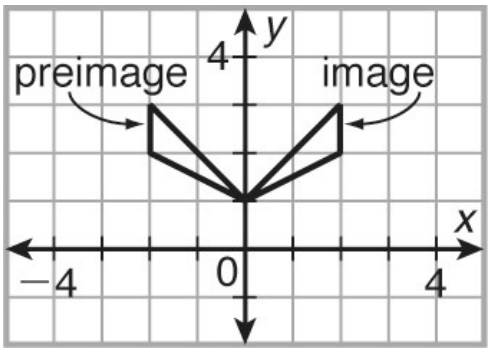
a.



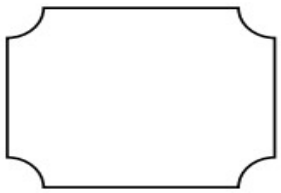
b.



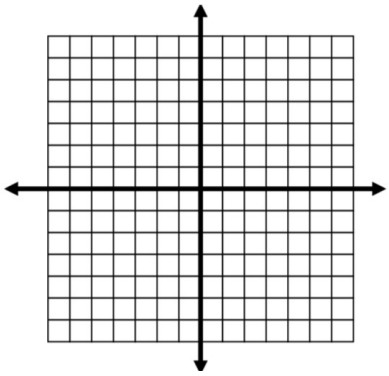
c.



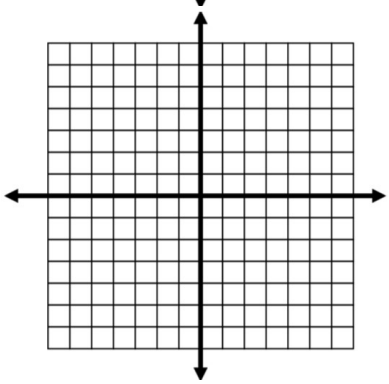
d. How many lines of symmetry does the figure have?



2. What are the new coordinates that represent the image of (2, -5) when reflected over the x-axis?

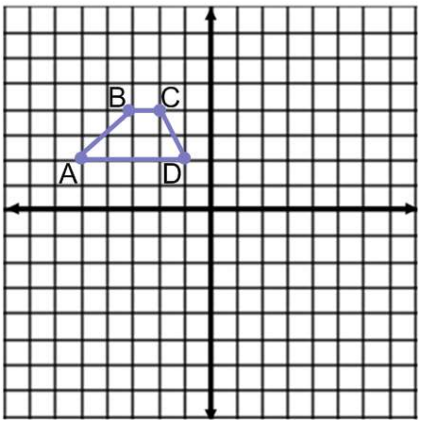


3. What are the new coordinates that represent the image of (-4, 7) when reflected over the y-axis?



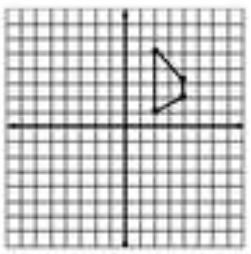
4. Which of the images below shows the preimage quadrilateral roated 270 degrees **counter clockwise**?

Preimage

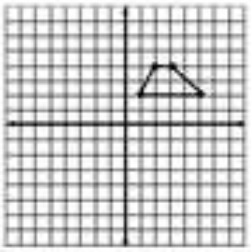


Images

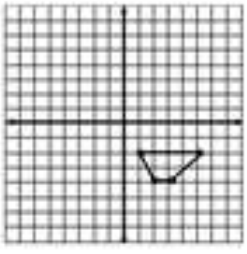
A.



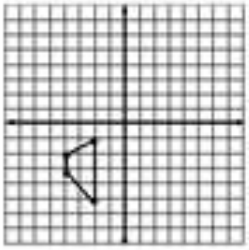
B.



C.

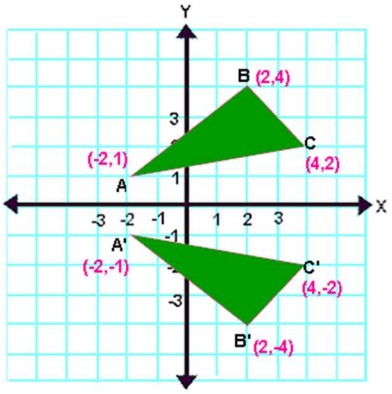


D.

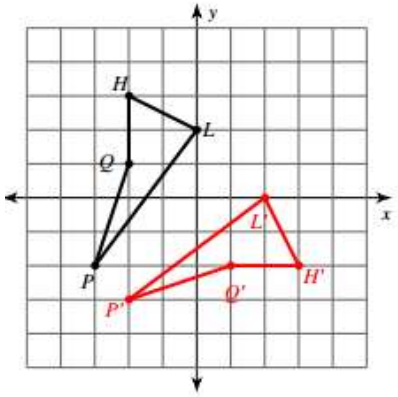


5. Using the figures below, write the equation that represents the line of symmetry between the preimage and image.

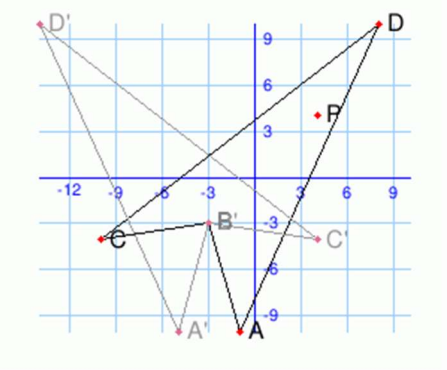
A.



B.



C.



6. Complete the following transformations with the image on the right.

Step 1: Reflect quadrilateral ABCD over the line x = 1.

Label the new image A'B'C'D'.

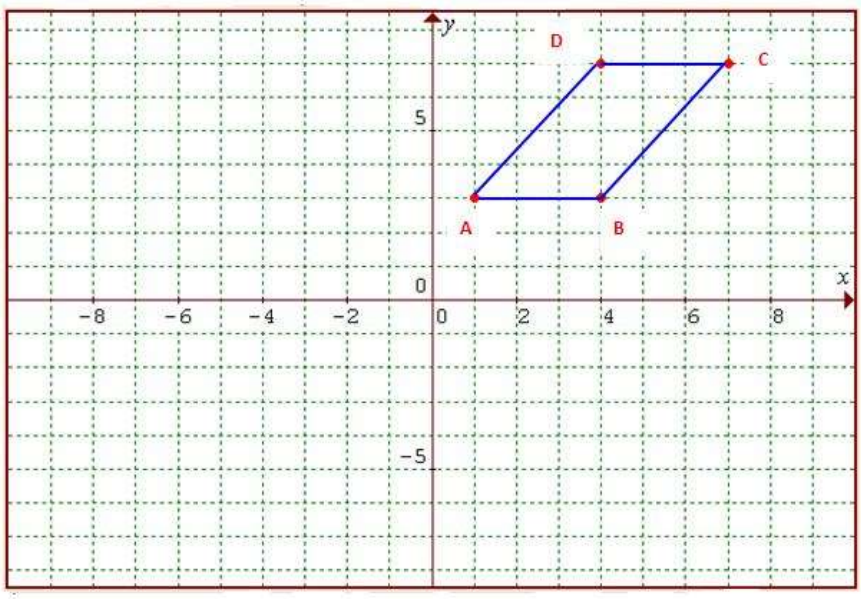
Step 2: Now, take A'B'C'D' and rotate it clockwise 180° around point B'. $R_{180°}$

(You may use the patty paper provided)

Label the new image as A''B''C''D''.

Step 3: Now, take A''B''C''D'' and complete the following transformation: $T_{<3,-1>}$.

Conclusion: Shade in the final quadrilateral.



7. Plot the following vertices in the coordinate plane and then prove that the triangle is a right triangle using slopes. K(6, -1), J(1, -4), and H(-5, 6).