1. a.) Find the coordinates of the midpoint of a segment connecting the points (-2, 9) and (8, 11).

b.) Find the coordinates of the midpoint of a segment connecting the endpoints A(-4, 7) and B(-10, -1).

c.) Determine the distance from the point (10, 1) to the point (-3, 2). Round answers to two decimal places.

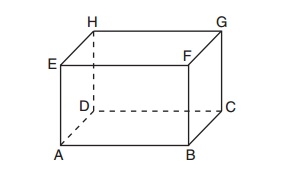
d.) Determine the distance from the point (8, 1) to the point (-3, 0). Round answers to two decimal places.

2. Identify the pattern, then find the next number in the pattern.

2a.) 1, 5, 9, 13, \_\_\_\_\_\_\_\_ 2a.) Pattern: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

2b.) 1, 3, 6, 10, 15, \_\_\_\_\_\_\_\_ 2b.) Pattern: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

2c.) , \_\_\_\_\_\_\_\_ 2c.) Pattern: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_



3. Use the diagram at the right to answer 3a-3d.

a.) Name 2 points that are collinear: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

b.) Name 3 points that are coplanar: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

c.) Name two lines that intersect at point D: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

d.) Name two planes that intersect at line EF: \_\_\_\_\_\_\_ \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

4. a.) If two lines intersect, then their intersection is exactly \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.

b.) If two planes intersect, then their intersection is a \_\_\_\_\_\_\_\_\_\_\_\_\_\_.

5. a.) The sum of the measures of two complimentary angles is \_\_\_\_\_\_\_\_\_\_\_\_.

b.) The sum of the measures of two supplementary angles is \_\_\_\_\_\_\_\_\_\_\_\_.

c.) Two angles that form a linear pair, their measures add up to \_\_\_\_\_\_\_\_\_\_.

d.) Vertical angles measures are \_\_\_\_\_\_\_\_\_\_\_\_\_ to each other.

6. a.) A polygon with all sides congruent is called \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.

b.) A polygon with all interior angles congruent is called \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.

c.) A polygon with all sides and angles congruent is called \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.

7. Give the number of sides for each polygon.

a.) Octagon: \_\_\_\_\_\_\_\_ b.) Quadrilateral: \_\_\_\_\_\_\_\_ c.) Decagon: \_\_\_\_\_\_\_\_

d.) Hexagon:\_\_\_\_\_\_\_\_ e.) Triangle:\_\_\_\_\_\_\_\_ f.) Nonagon:\_\_\_\_\_\_\_\_

g.) Pentagon:\_\_\_\_\_\_\_\_ h.) Heptagon:\_\_\_\_\_\_\_\_

8. Draw an example of:

a.) a concave polygon. b.) a convex polygon.

9. Area formula of a:

a.) Triangle: A=\_\_\_\_\_\_\_\_\_\_\_\_\_ b.) Rectangle: A=\_\_\_\_\_\_\_\_\_\_\_\_\_

c.) Square: A=\_\_\_\_\_\_\_\_\_\_\_\_\_ d.) Circle: A=\_\_\_\_\_\_\_\_\_\_\_\_\_

10. a.) Perimeter of a Rectangle: P=\_\_\_\_\_\_\_\_\_\_\_\_\_\_ b.) Circumference of a Circle: C= \_\_\_\_\_\_\_\_

11. Properties (*Reflexive, Symmetric or Transitive*) are being shown in the following statements. Complete the

statement so that it is true.

a.) Reflexive: \_\_\_\_\_\_\_\_\_\_

b.) Symmetric: If ABCRST, then \_\_\_\_\_\_\_\_\_\_ \_\_\_\_\_\_\_\_\_\_.

c.) Transitive: If , and 23, then \_\_\_\_\_\_\_\_\_\_ \_\_\_\_\_\_\_\_\_\_\_.

12. In the diagram below, if and , find .

N

O

P

12.) OP = \_\_\_\_\_\_\_\_\_\_\_\_

13. In the diagram below, . Find *RS* and *ST*.

13.) RS = \_\_\_\_\_\_\_\_\_\_\_\_

S

T

R

ST = \_\_\_\_\_\_\_\_\_\_\_\_

14. Given point E is the midpoint of , determine *EQ* with the given information.

E

Q

V

14.) EQ = \_\_\_\_\_\_\_\_\_\_\_\_

15. Classify each polygon by number of sides and determine whether it is equiangular, equilateral, or regular.

a.) b.)

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_, \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_, \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

16. Use the information about the figure to find the indicated measures. LABEL your answers!

a.) Rectangle:

*2 in*.

*x*

Perimeter= 14 inches 16a.) *x* = \_\_\_\_\_\_\_\_\_\_\_\_\_

Find *x* and area.

Area = \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

*x*

b.) Square:

Area= 56.25 16b.) *x* = \_\_\_\_\_\_\_\_\_\_\_\_\_

Find *x* and the perimeter.

Perimeter = \_\_\_\_\_\_\_\_\_\_\_\_

c.) Triangle:

*h=14 cm*

*x*

Area= 56 16c.) *x* = \_\_\_\_\_\_\_\_\_\_\_\_\_

Find x.

17. Use the diagram to identify an example of: *corresponding, alternate interior, alternate exterior, consecutive interior or vertical angles.*

*n*

*m*

2

4

3

5

6

8

7

1

a.) Corresponding Angles: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

b.) Alternate Interior Angles: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

c.) Consecutive Interior Angles: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

*k*

d.) Alternate Exterior Angles: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

e.) Vertical Angles: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

f.) Linear Pair: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

18. In the diagram above- If and *k* is a transversal then…

a.) Corresponding angles are \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

b.) Consecutive interior angles are \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

c.) Alternate exterior angles are \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

d.) Alternate interior angles are \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

19. Determine the value of *x*, if .

a.)

19a.) \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

b.)

19b.) \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

c.) 19c.) \_\_\_\_\_\_\_\_\_\_\_\_\_\_

d.) 19d.) \_\_\_\_\_\_\_\_\_\_\_\_\_\_

20. Use the following conditional statement to answer questions a-f.

*If an angles measure is 90°, then it is a right angle.*

a.) What is the hypothesis? \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

b.) What is the conclusion?\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

c.) Write the converse. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

d.) Write the inverse. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

e.) Write the contrapositive. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

f.) Write as a biconditional statement.

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

21. Show your work!Find the value of the variables and the measure of each angle.



a.) b.)

°

28˚

*y˚*

21a.) *x* =\_\_\_\_\_\_\_\_\_ 21b.) *x* =\_\_\_\_\_\_\_\_\_

*y* = *\_\_\_\_\_\_\_\_\_ y* = *\_\_\_\_\_\_\_\_\_*

c.) Find the measures of *x* and *y*.

21c.) *x*=\_\_\_\_\_\_\_\_\_\_

°

()°

(

*y*=\_\_\_\_\_\_\_\_\_\_

22. Use the diagram and information below to determine if . Write parallel or not parallel on the line provided. If the lines are parallel, write which **theorem or postulate** justifies your answer.

1 2 3 4

5 6 7 8

b

a

a.) Given: 5 22a.) \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

theorem or postulate - \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

b.) Given: 2 + 3= 180˚ 22b.)\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

theorem or postulate - \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

c.) Given: 5 22c.)\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

theorem or postulate - \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

d.) Given: 2 22d.)\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

theorem or postulate - \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

e.) Given: 2 + 6= 180˚ 22e.)\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

theorem or postulate - \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

23. Is writing a proof an example of (circle one) **inductive** or **deductive** reasoning. Explain your answer.

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

24. Decide whether the statement is true or false. If false, provide a counterexample.

a.) is always larger than *x*. b.) The product of two negative numbers is always positive.

25. Use the Law of Syllogism to write a new conditional statement based on the following:

If Ellie goes to college, then she will major in Chemistry. If Ellie majors in Chemistry, the she will need to

buy a lab manual.

26. In the following statement, what type of reasoning was used (circle one) **inductive** or **deductive**. Explain your reasoning.

For the past 5 years, your neighbor went on vacation for the 4th of July and they ask you to feed their dog. You conclude you will be asked to feed their dog the next 4th of July.

27. Determine the measure of *t*.

27.) \_\_\_\_\_\_\_\_\_\_\_

t

75˚

98˚

28. Determine the value of *x*.

28.) \_\_\_\_\_\_\_\_\_\_\_

*x*

(2x + 10)°



29. Find *x* and *y*.

55˚

*y˚*

a.) b.) 29a.) *x=*\_\_\_\_\_\_\_\_\_\_\_\_

25

*y˚*

y*=*\_\_\_\_\_\_\_\_\_\_\_\_

29b.) *x=*\_\_\_\_\_\_\_\_\_\_\_\_

y*=*\_\_\_\_\_\_\_\_\_\_\_\_

c.) 29c.) *x=*\_\_\_\_\_\_\_\_\_\_\_\_

144°

) yd

yd

y*=*\_\_\_\_\_\_\_\_\_\_\_\_\_

30. State the third congruence that must be given to prove that  using the indicated postulate.

a.) , , \_\_\_\_\_\_ \_\_\_\_\_\_ b.) , , \_\_\_\_\_\_\_\_\_\_\_\_

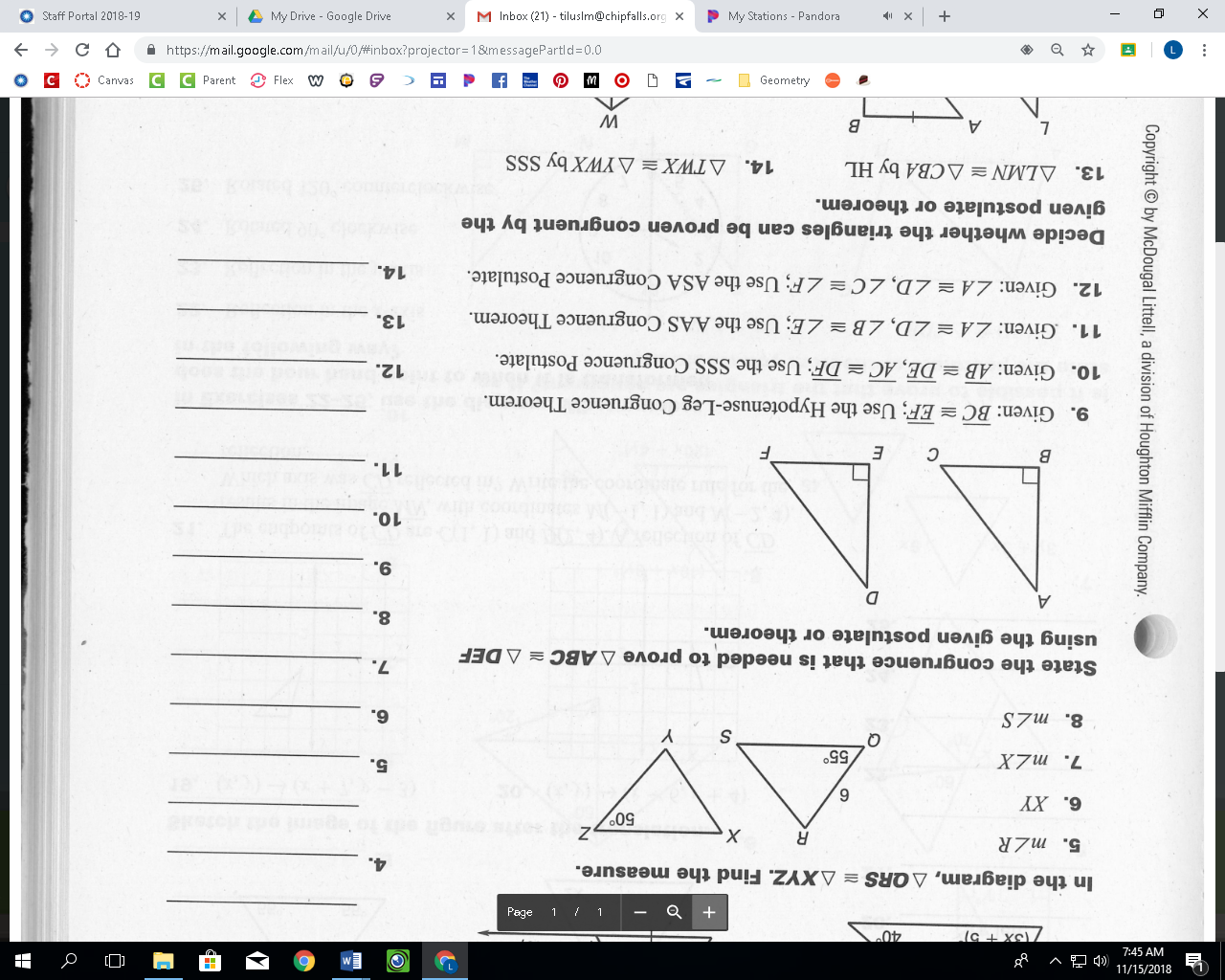
**Use the SAS Congruence Theorem**  **Use the AAS Congruence Postulate**



c.) , , \_\_\_\_ \_\_\_\_\_ d.) and are right triangles,

 **Use the ASA Congruence Postulate** ,

**Use the HL Congruence Postulate**



31. Which postulate or theorem proves that each pair of triangles below is congruent?

a.) b.) c.)

31a.)\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ 31b.)\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ 31c.)\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

d.) e.)

31d.)\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ 31e.)\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

32. Fill in the blanks to complete the proof.

A

B

C

D

**Given:**  bisects  and 

**Prove:** 

Statement Reason

1. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ 1. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

2. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ 2. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

3. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ 3. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

4. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ 4. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

5. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ 5. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

33. Fill in the blanks to complete the proof.

V

S

R

U

T

**Given:**  and

**Prove:**

Statement Reason

1. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ 1. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

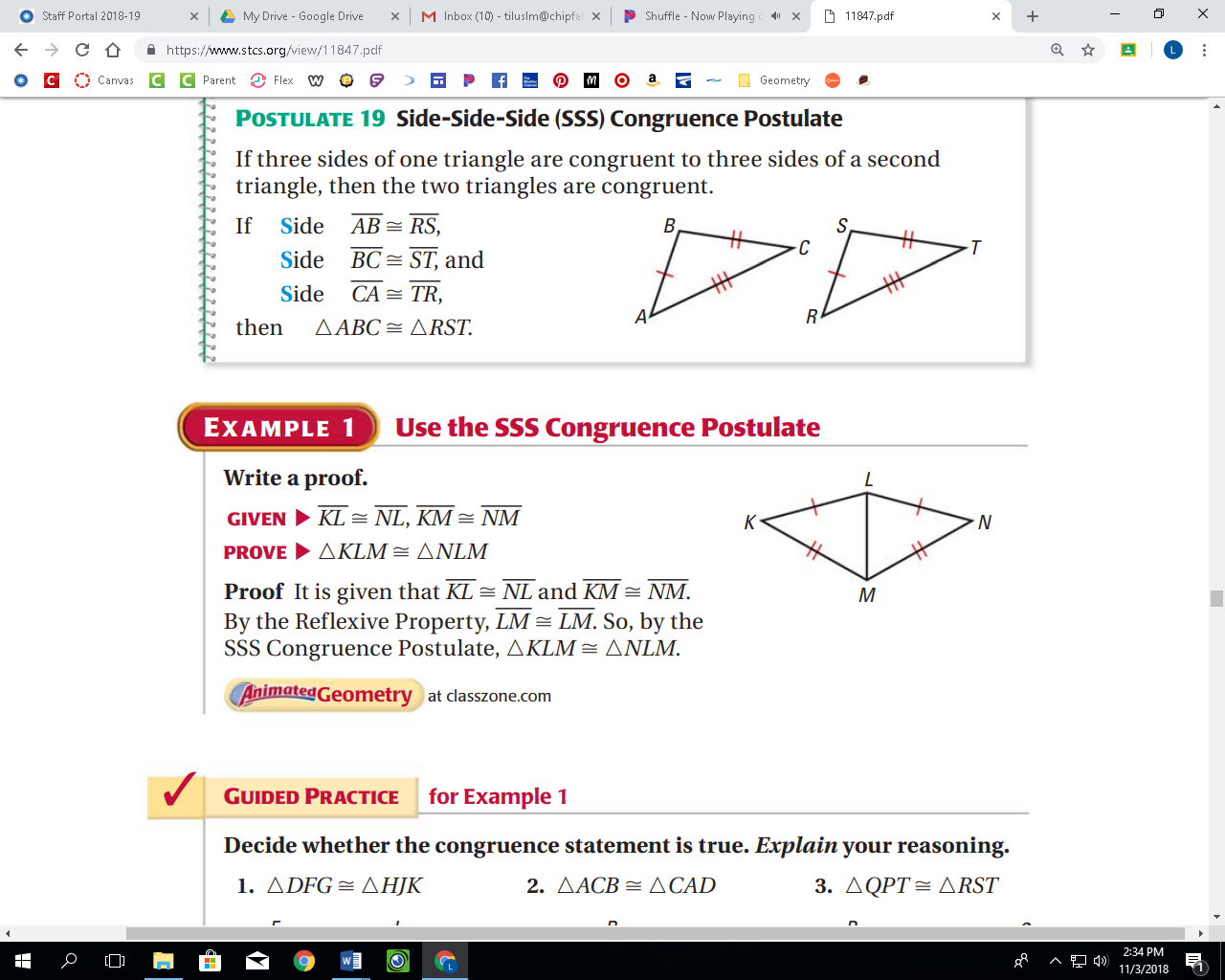
2. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ 2. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

3. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ 3. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

4. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ 4. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

5. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ 5. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

6. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ 6. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

34. Fill in the blanks to complete the proof. 

**Given:**

**Prove:**

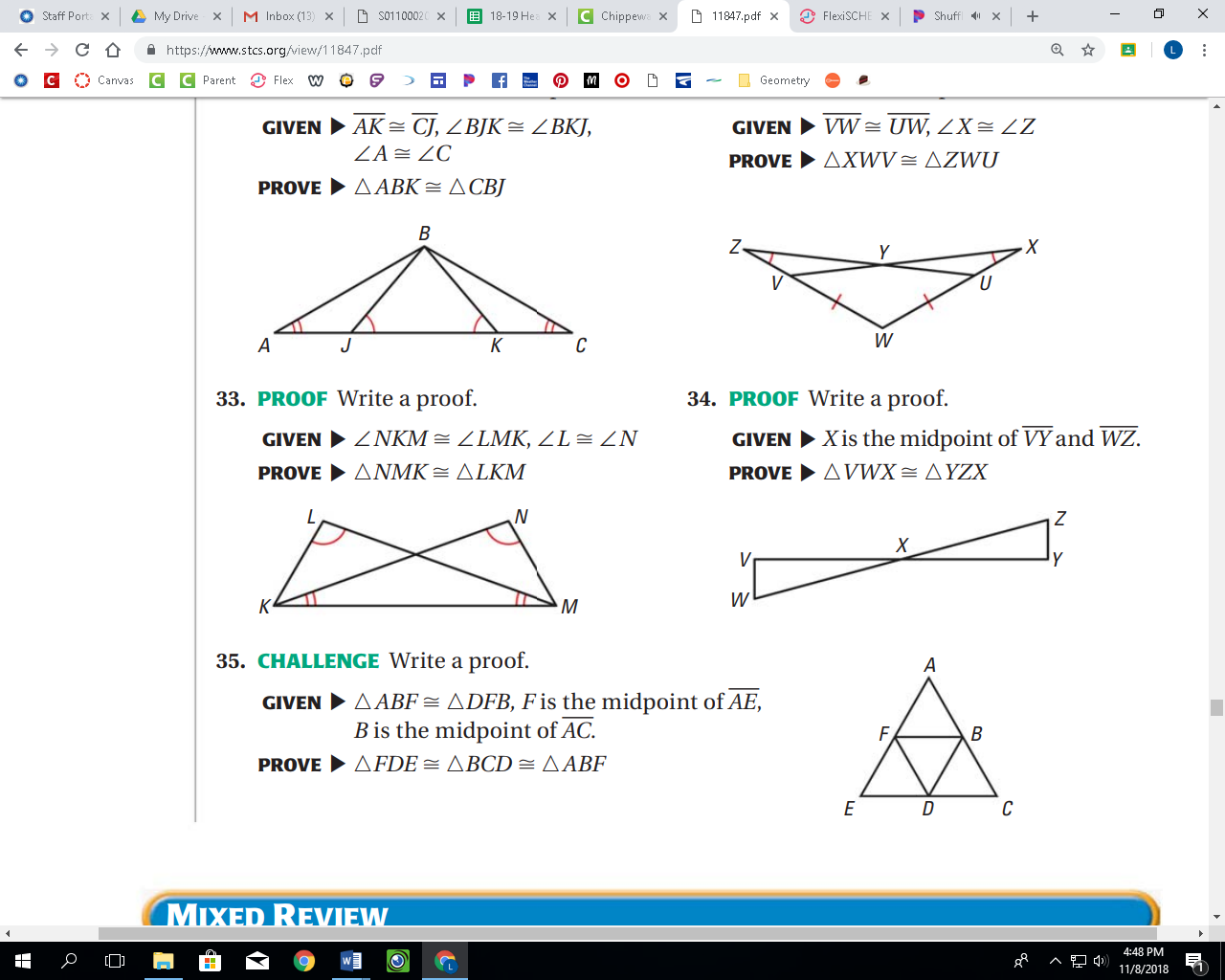
Statement Reason

1. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ 1. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

2. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ 2. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

3. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ 3. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

4. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ 4. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

35. Fill in the blanks to complete the proof.

**Given:**

**Prove:**

Statement Reason

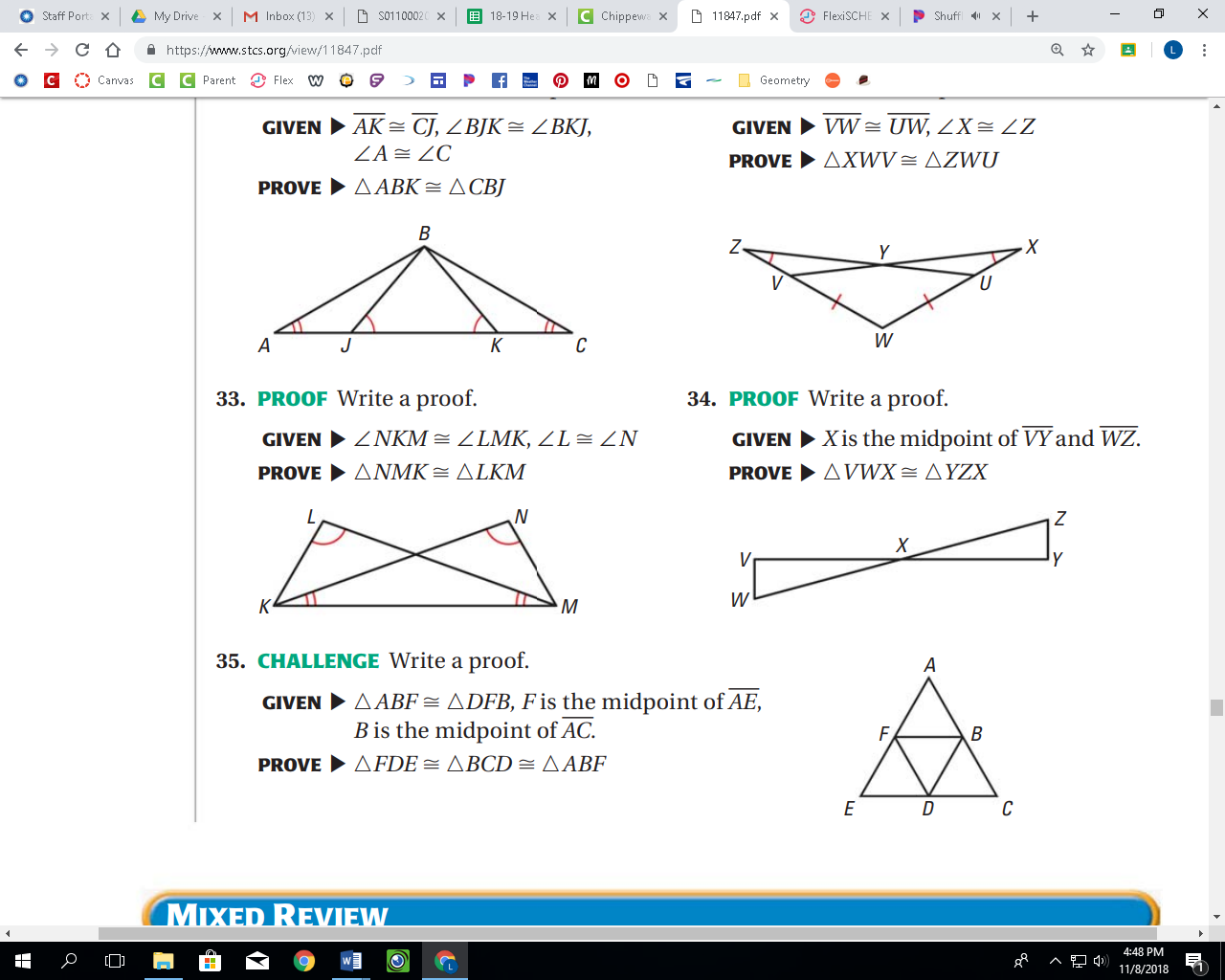
1. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ 1. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

2. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ 2. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

3. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ 3. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

4. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ 4. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

5. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ 5. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_



36. Fill in the blanks to complete the proof.

**Given:**  ,

**Prove:**

Statement Reason

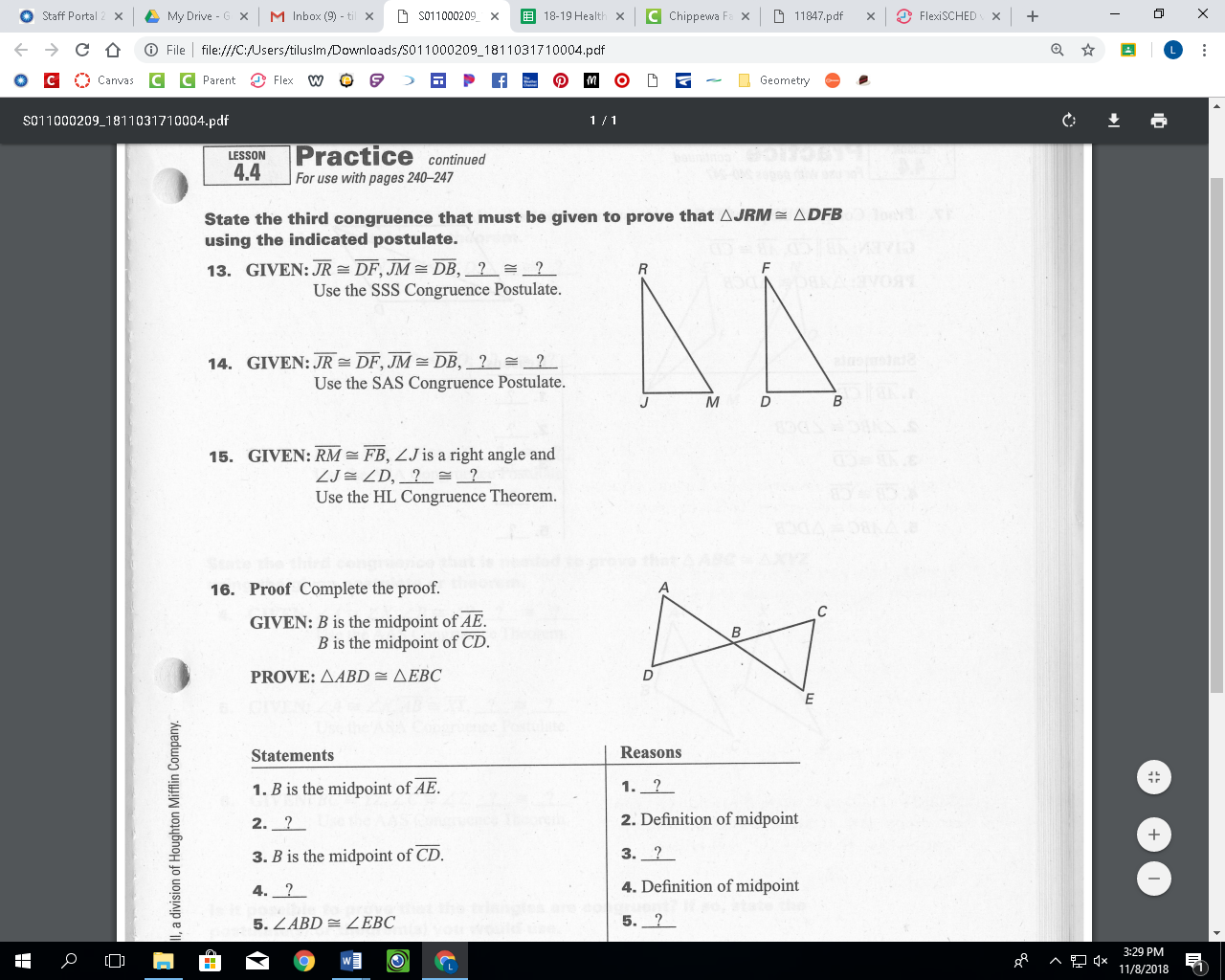
1. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ 1. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

2. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ 2. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

3. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ 3. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

4. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ 4. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

5. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ 5. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_



37. Fill in the blanks to complete the proof.

**Given:**  *B* is the midpoint of

*B* is the midpoint of

**Prove:**

Statement Reason

1. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ 1. Given

2. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ 2. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

3. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ 2. Given

4. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ 4. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

5. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ 5. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

6. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ 6. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

38. Find the value of *x*.

X

P

Y

N

S

Q

R

T

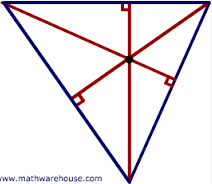
(5x - 36)˚

(2x + 21)˚

a.) b.)

38a.) \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ 38b.) \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

39. Use the figure below to answer the questions.



**G**

**I**

**H**

**J**

**K**

**L**

**P**

a.), , , are called\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

b.) What is point P called? \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

40. Use the figure below to answer the questions.

**A**

**C**

**B**

**D**

**E**

**F**

**P**

**11 in**

a.) , , are called \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

b.) What is point P called? \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

**10 in**

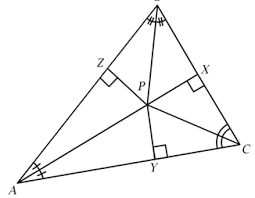
c.) d.)

**8 in**

**5 in**

e.) f.).

41. Use the figure below to answer the questions.



*B*

a.), , , are called\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

b.) What is point P called? \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

c.) Find the value of *x*.

28.) Solve the proportion.

42. In the diagram below, , , and .

S

T

R

P

K

L

J

a.) , , are called \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

b.) What is Point P called? \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

c.) d.)

e.) f.)

g.) h.)

i.) j.)

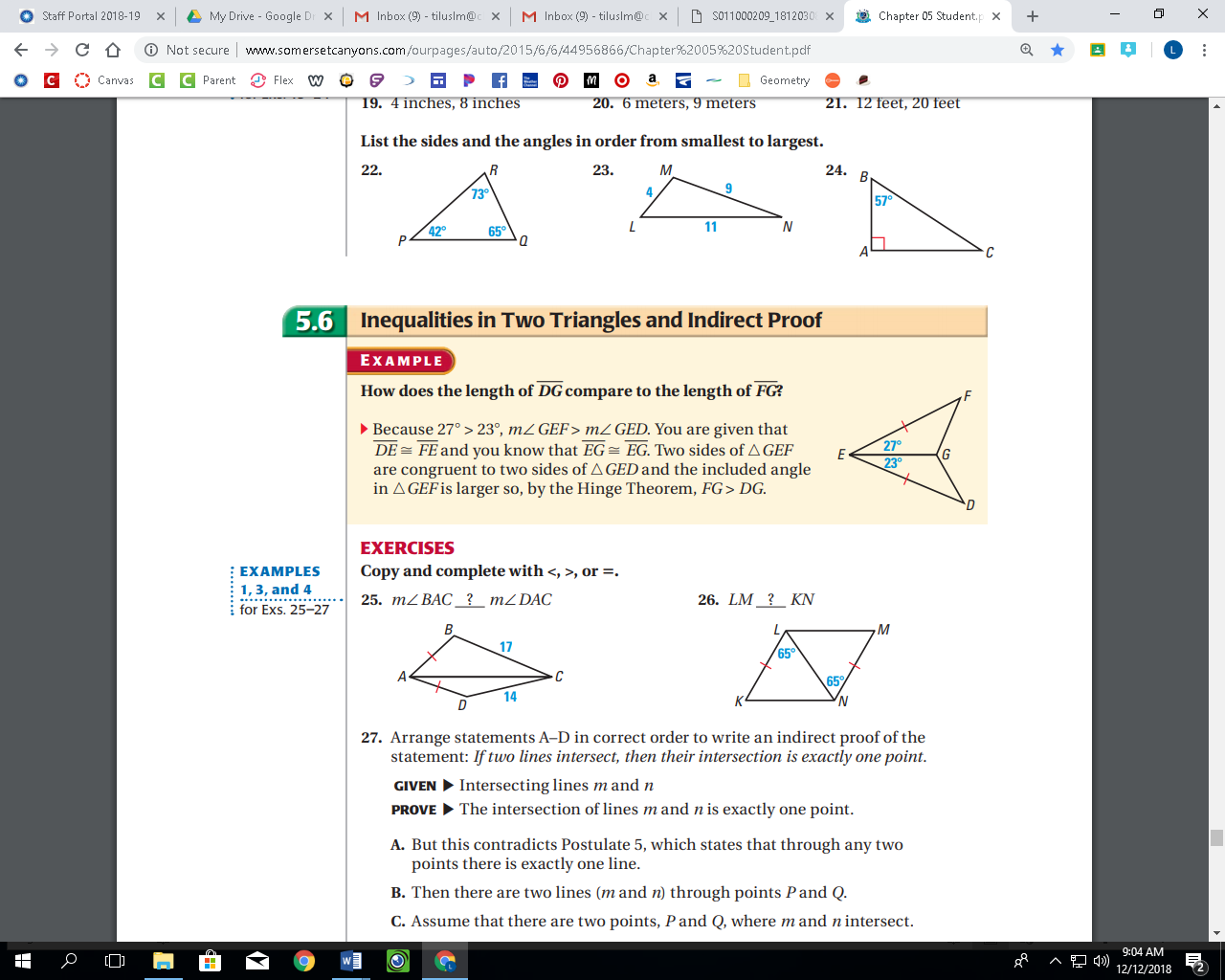
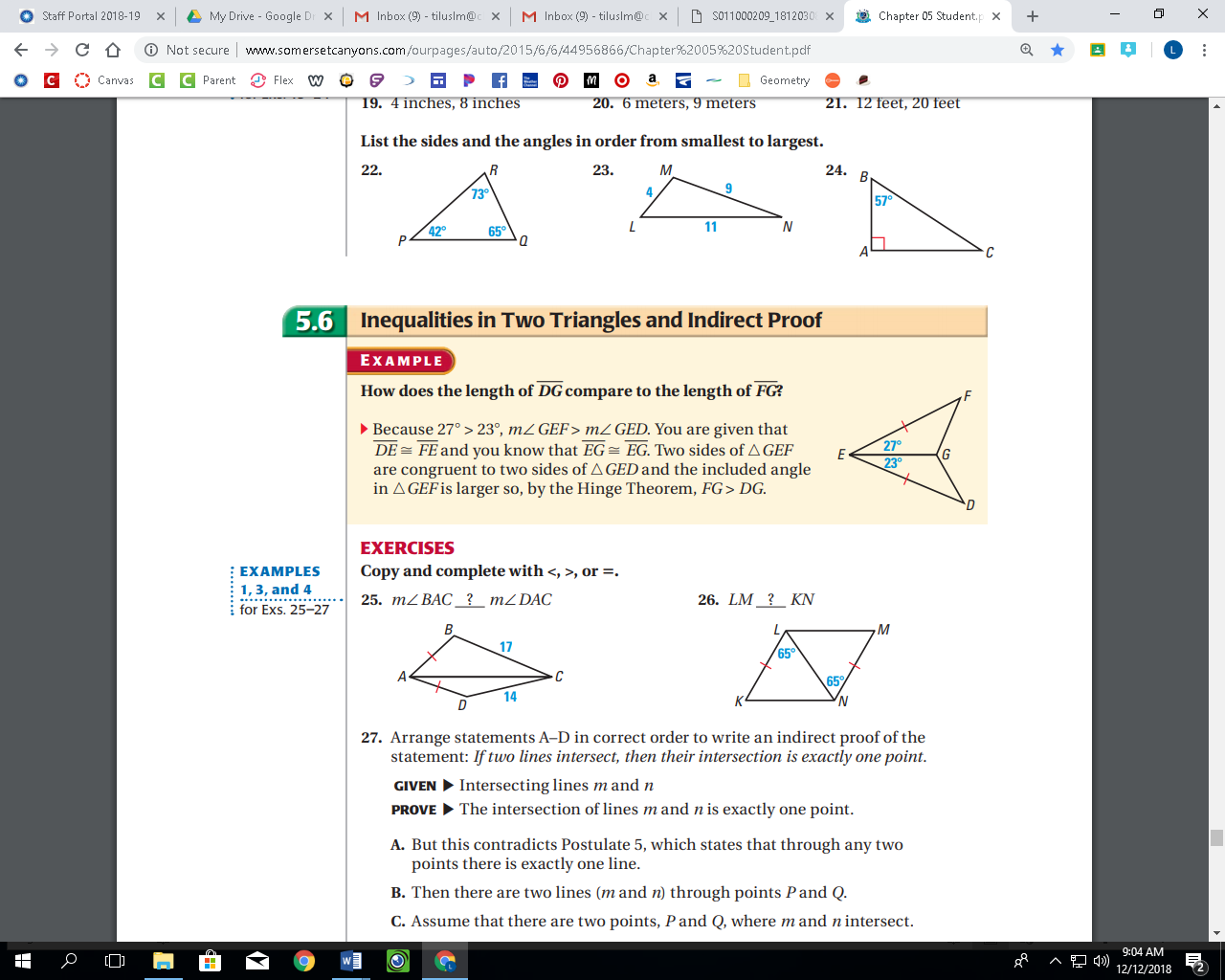
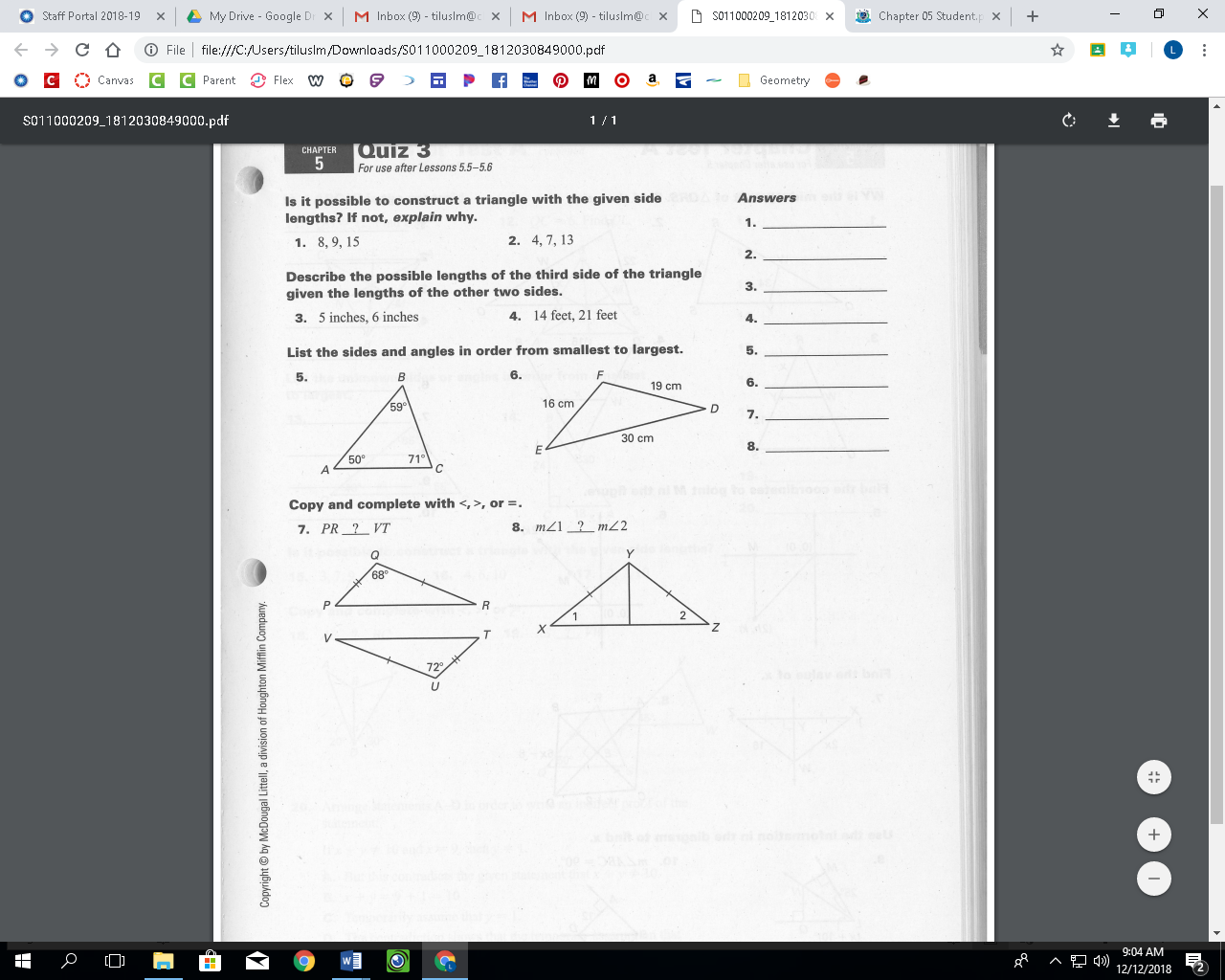
43. Is it possible to construct a triangle with the given side lengths? If not, explain why.

a.) 12, 14, 25 b.) 4, 9, 13 c.) 12, 13, 20

44. Describe the possible lengths of the third side of the triangle given the lengths of the other two sides.

a.) 16 inches, 23 inches b.) 18 feet, 5 yards

45. Complete with Justify your answer.



54. 55. 56.

46. Solve the proportions.

a.)  b.)  c.)

47. Find the value of *x*.

*x*

a) b)

C

A

B

V

48. If ABCDE ~ PQRST, find the scale factor of ABCDE to ABCDE and the missing values *x*, *y*, and *z*.

A 20 B T 4 P

143˚

*x* C 8

5

z˚

E D S  Q

*y*

R

49. Determine if the two triangles are similar. If yes, write a similarity statement and the theorem that proves they are similar. If no, say not similar. **Show proof.**

A

B

C

X

Y

Z

36

24

15

12

113˚

113˚

8

5

a.)

If **YES**: Similarity statement:\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Theorem:\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

b.)

R

16

T

12

6

S

D

E

4

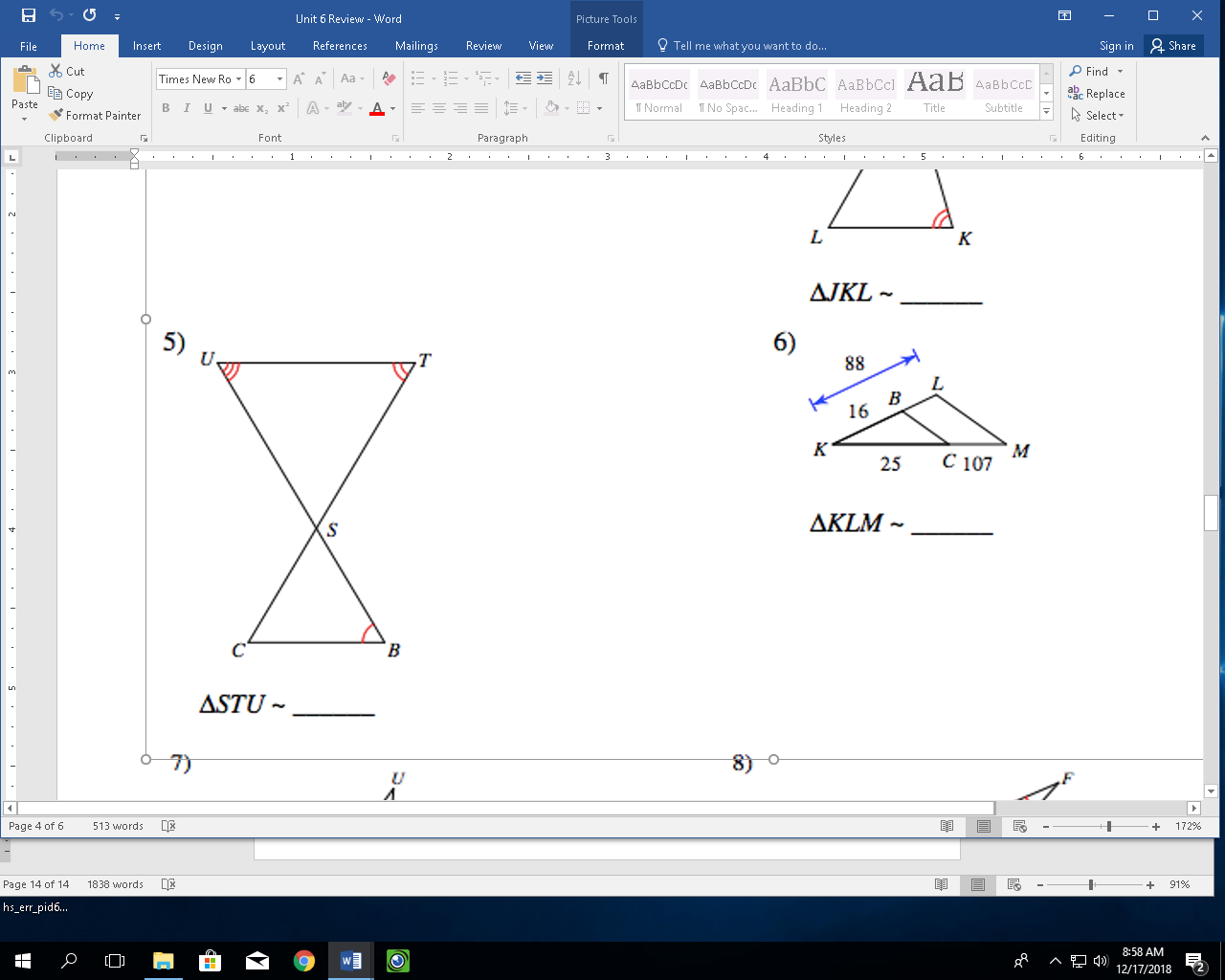
F

3

2

If **YES**: Similarity statement:\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

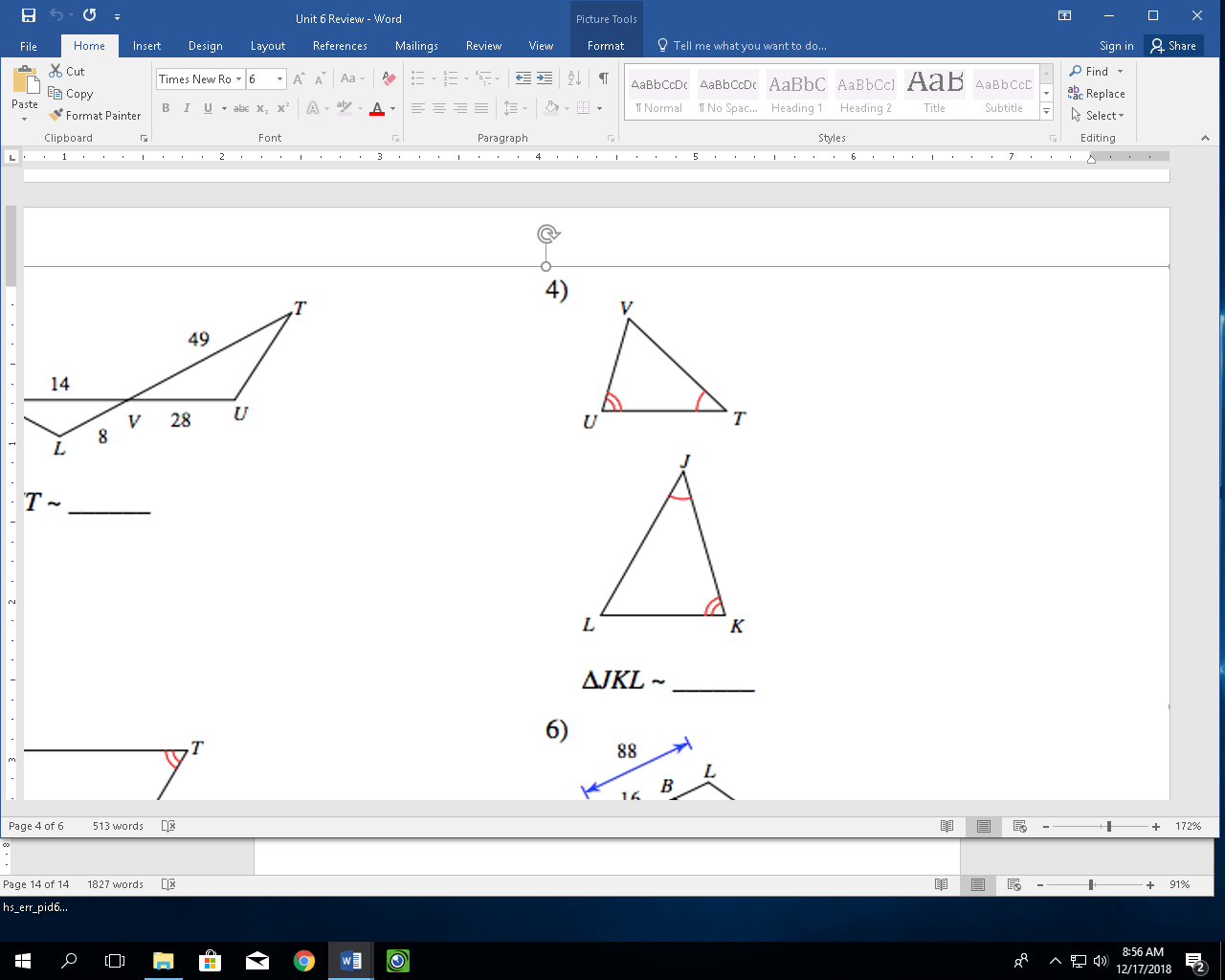
Theorem:\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

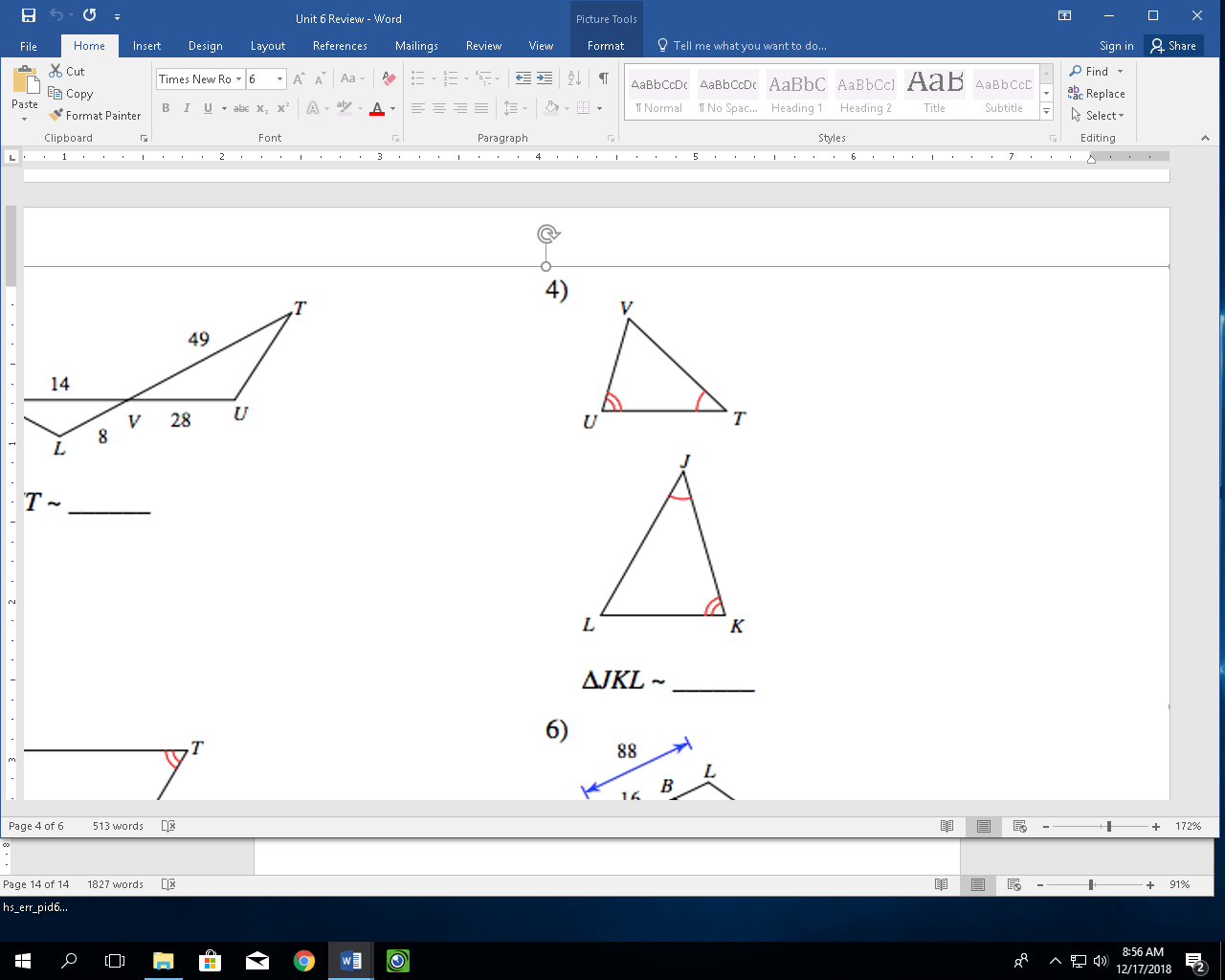


c.)

If **YES**: Similarity statement:\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

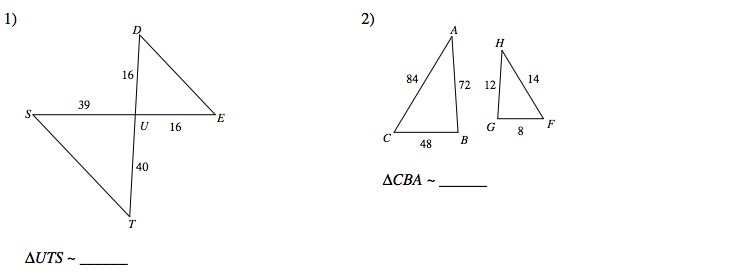
Theorem:\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_



d.)

If **YES**: Similarity statement:\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Theorem:\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

 e.)

If **YES**: Similarity statement:\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Theorem:\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_