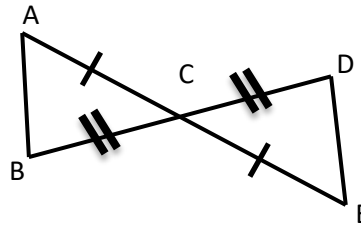


Unit 3 – Congruent Triangles

1. A student makes a claim that the two triangles can be proved congruent from the given information. Choose the correct statement.

- A. The triangles can be proved congruent by SAS.
- B. The triangles can be proved congruent by SSS.
- C. The triangles can be proved congruent by ASA.
- D. The triangles can't be proved congruent.



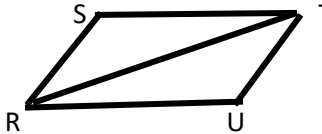
1. ____

1b. Complete the triangle congruency.

1b. $\triangle ABC \cong \triangle$ _____

1c. RSTU is a Parallelogram

1c. $\triangle RST \cong \triangle$ _____



By _____

2. State if the statements are TRUE or FALSE based upon the given information.

A. Triangles congruent by SAS

B. Triangles congruent by HL

C. Triangles congruent by ASA

D. Triangles congruent by ASA

E. Triangles congruent by SSS

F. Triangles congruent by AAS

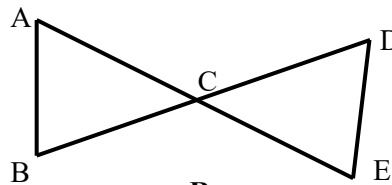
- A. _____
- B. _____
- C. _____
- D. _____
- E. _____
- F. _____

3-5. Complete the proof below, choosing from the following reasons, and reasons may be used more than once.

- A. Side-Angle-Side Triangle Congruency
 - B. If lines are parallel, then corresponding angles are congruent.
 - C. Corresponding Parts of Congruent Triangles are Congruent
 - D. Vertical Angles are congruent.
 - E. Angle-Angle-Side Triangle Congruency
3. _____
4. _____
5. _____

Given: $\overline{AB} \cong \overline{DE}$, $\angle A \cong \angle D$

Prove: $\overline{BC} \cong \overline{EC}$

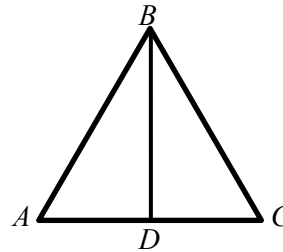


Statements	Reasons
1. $\overline{AB} \cong \overline{DE}$, $\angle A \cong \angle D$	1. Given
2. $\angle ACB \cong \angle DCE$	2. _____ (#3)
3. $\triangle ACB \cong \triangle DCE$	3. _____ (#4)
4. $\overline{BC} \cong \overline{EC}$	4. _____ (#5)

6-9. Complete the proof below, choosing from the following reasons, and reasons may be used more than once.

- A. Definition of Angle Bisector
- B. Transitive Property
- C. Definition of Bisector
- D. Reflexive Property
- E. Side-Angle-Side Congruency
- F. Angle-Side-Angle Congruency
- G. Perpendicular Lines form Congruent Right Angles

- 6. ____
- 7. ____
- 8. ____
- 9. ____

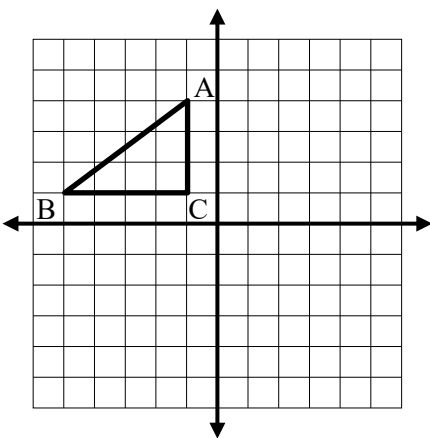


Given: \overline{BD} is a perpendicular bisector of \overline{AC}

Prove: $\triangle ABD \cong \triangle CBD$

Statements	Reasons
1. \overline{BD} is a perpendicular bisector of \overline{AC}	1. Given
2. $\overline{AD} \cong \overline{CD}$	2. _____ (#6)
3. $\angle ADB \cong \angle CDB$	3. _____ (#7)
4. $\overline{BD} \cong \overline{BD}$	4. _____ (#8)
5. $\triangle ABD \cong \triangle CBD$	5. _____ (#9)

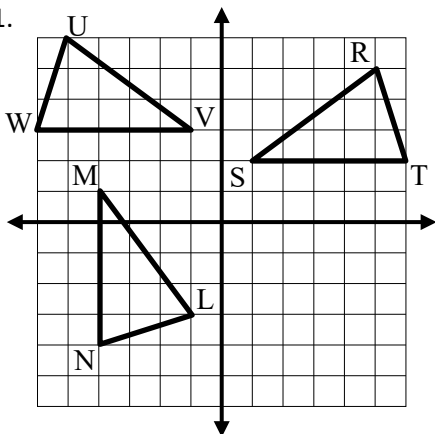
10.



Rigid motions of the transformations of translations, reflections and rotations preserve congruency. That is, when a figure is translated, reflected or rotated the image figure will be congruent to the original shape.

- a. Transform and label $\triangle ABC$ to create the image $\triangle A'B'C'$ by translating 7 units to the right and 2 units up, that is $\langle x, y \rangle \rightarrow \langle x + 7, y + 2 \rangle$
- b. Transform and label $\triangle ABC$ to create the image $\triangle RST$ by first reflecting $\triangle ABC$ across the x axis and then rotating it 90° counterclockwise about the origin.

11.



- a. Describe the transformation of $\triangle RST$ to its image $\triangle UVW$.

- b. Describe the transformation of $\triangle RST$ to its image $\triangle LMN$.

12. TRUE or FALSE

- a. Rigid motion preserves congruency.
- b. Translating figures across the y axis can be written $\langle x, y \rangle \rightarrow \langle -x, y \rangle$
- c. Rotating a figure 90° counterclockwise can be written $\langle x, y \rangle \rightarrow \langle -y, x \rangle$

- 12a. ____
- b. ____
- c. ____

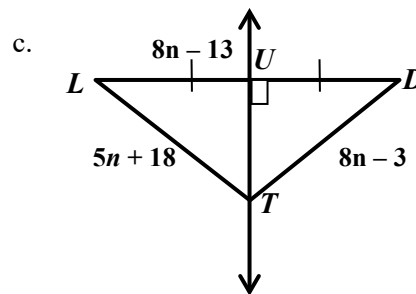
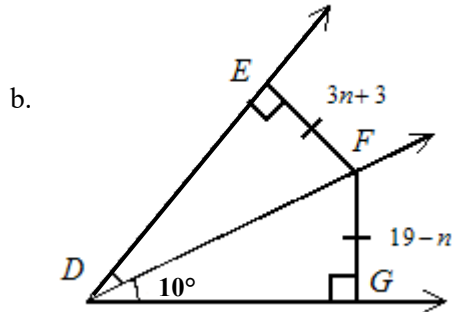
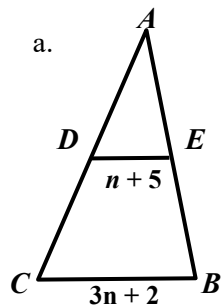
Unit 4 – Proving Theorems about Triangles

13a. List the lengths of 3 segments that will create a triangle and explain why. _____

b. List the lengths of 3 segments that will NOT create a triangle and explain why. _____

14. Circle the list(s) of segment lengths can NOT make a triangle? 3, 2, 4 5, 4, 10 3, 10, 9 6, 5, 11

15. Solve for n



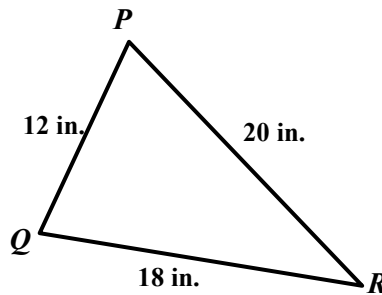
15a. _____

b. _____

c. _____

16. Which statement about $\triangle PQR$ is FALSE?

- A. $m\angle P \leq m\angle Q$
- B. $m\angle P \geq m\angle R$
- C. $m\angle Q \leq m\angle R$
- D. $m\angle Q \geq m\angle P$
- E. $m\angle R \leq m\angle P$



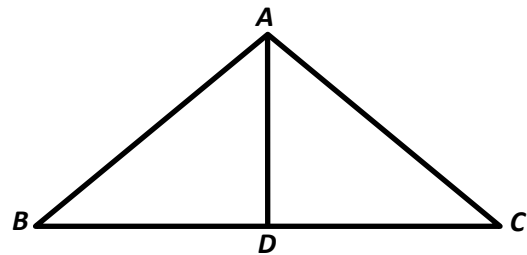
16. ____

17. Consider all triangles that satisfy the given conditions

- D is a point on the side of $\triangle ABC$
- $\overline{AB} \cong \overline{AC}$
- $m\angle BAD = m\angle CAD$

Determine whether each statement is

- True for all triangles that satisfy the given conditions
- True for some triangles that satisfy the given conditions
- NOT true for any triangles that satisfies the given conditions



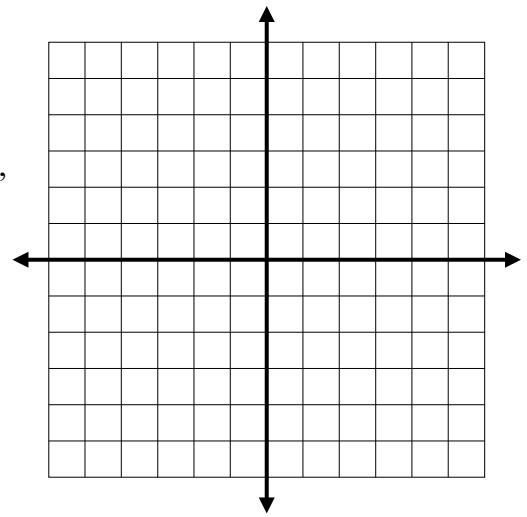
Statement	True for all	True for some	NOT true for any
a. \overline{AD} is perpendicular to \overline{BC}			
b. $m\angle ABD$ is less than $m\angle BAD$			
c. $m\angle ACB = \frac{1}{2} (m\angle ABD)$			
d. $BD = \frac{1}{2} BC$			

18. The coordinates of the vertices of a triangle are A (- 5, - 2), B (- 1, 6), C (3, - 4). Plot and label the points on the graph.

a. Find and label the points on the graph for the coordinates of D, the midpoint of \overline{AC} , and coordinates of E, the midpoint of \overline{CB} .

b. Mathematically show that \overline{DE} is parallel to \overline{AB} .

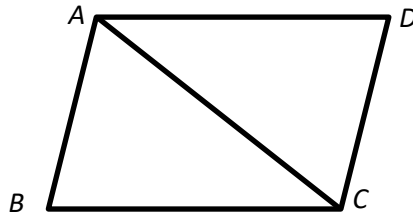
c. Mathematically show that the length of \overline{DE} is half the length of \overline{AB} .



19. Jim claims that $\triangle ABC \cong \triangle CDA$. Choose which would **Not** be enough information to prove that the two triangles are congruent.

19. ____

- A. $\overline{AD} \parallel \overline{BC}$ and $\overline{AB} \parallel \overline{DC}$
- B. $\triangle ABC$ is a rotation of $\triangle CDA$
- C. $\overline{AD} \cong \overline{BC}$ and $\overline{AB} \cong \overline{DC}$
- D. $\overline{AD} \cong \overline{AC} \cong \overline{CB}$



Unit 5 – Proving Theorems about Quadrilaterals

20. For a regular 8 sided polygon, find the measure of

a. the sum of the interior angles

b. the sum of the exterior angles

20a. ____

b. ____

c. one interior angle

d. one exterior angle

c. ____

d. ____

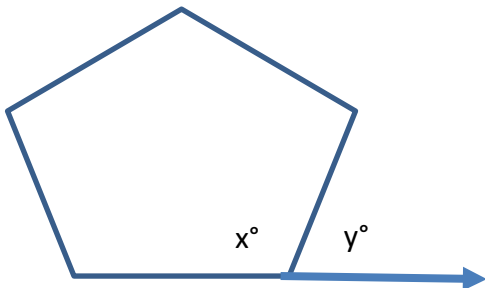
21. Find all the Angle measures indicated of a Regular Pentagon.

21a. Sum of the interior angles

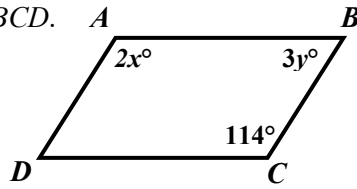
b. Sum of the exterior angles

c. $x =$

d. $y =$



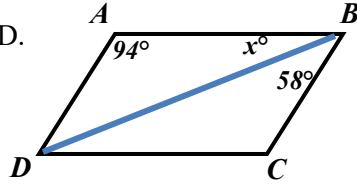
22. Solve for x and y in parallelogram $ABCD$.



22. $x =$ _____

$y =$ _____

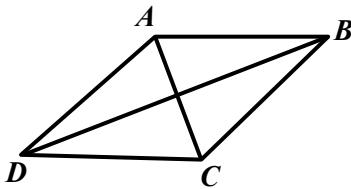
23. Solve for x in parallelogram $ABCD$.



23. $x =$ _____

24. If $ABCD$ is a rhombus, $m\angle ADC = 50^\circ$. What is the $m\angle BAC$?

24. _____

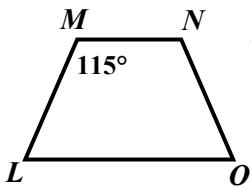


25. $LMNO$ is an isosceles trapezoid. What is the measure of _____?

25a. $m\angle N =$ _____

b. $m\angle O =$ _____

c. $m\angle L =$ _____



26 – 29. Complete the proof below, choosing from the following reasons, and reasons may be used more than once.

26. _____

27. _____

28. _____

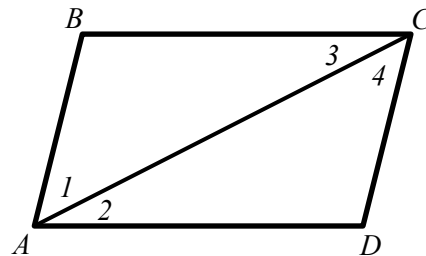
29. _____

- A. Reflexive Property
- B. Corresponding Parts of Congruent Triangles are Congruent
- C. If lines are parallel, then corresponding angles are congruent.
- D. If lines are parallel, then alternate interior angles are congruent.
- E. Angle-Side-Angle Triangle Congruency
- F. Side-Side-Side Triangle Congruency

Given: $ABCD$ is a parallelogram

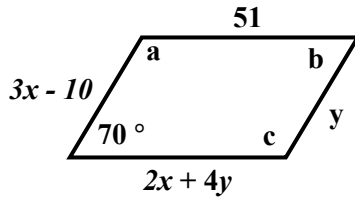
Prove: $\angle B \cong \angle D$

A parallelogram has opposite angles that are congruent.



Statements	Reasons
1. $ABCD$ is a parallelogram	1. Given
2. $\overline{AB} \parallel \overline{CD}$ and $\overline{BC} \parallel \overline{DA}$	2. Definition of parallelogram
3. $\angle 1 \cong \angle 4$ and $\angle 3 \cong \angle 2$	3. _____ (#26)
4. $\overline{AC} \cong \overline{AC}$	4. _____ (#27)
5. $\triangle ABC \cong \triangle CDA$	5. _____ (#28)
6. $\angle B \cong \angle D$	6. _____ (#29)

30. In the parallelogram, solve for all variables.



30. $x =$ _____

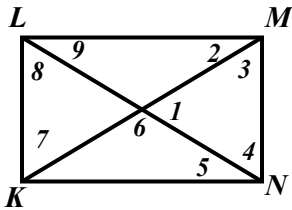
$y =$ _____

$a =$ _____

$b =$ _____

$c =$ _____

31.



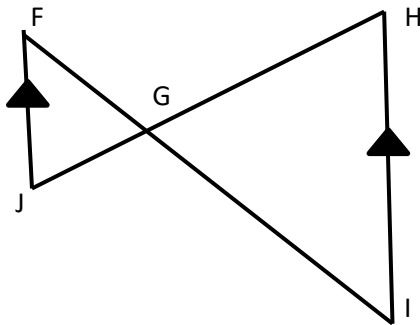
In rectangle KLMN, $m\angle 2 = 65^\circ$. Find the other angles.

$m\angle 1 =$ _____ $m\angle 3 =$ _____ $m\angle 4 =$ _____ $m\angle 5 =$ _____

$m\angle 6 =$ _____ $m\angle 7 =$ _____ $m\angle 8 =$ _____ $m\angle 9 =$ _____

Unit 6 – Similarity

32.

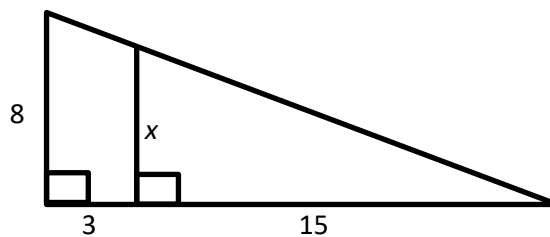


The two triangles are similar. Complete the statements:

$\angle F \cong$ _____ $\angle J \cong$ _____ $\angle HGI \cong$ _____

$\Delta FGJ \sim \Delta$ _____ $\Delta HIG \sim \Delta$ _____

33. Solve for x .



33. _____

34. Triangles can be proven similar by _____

35. Choose **ALL** equivalent expressions to $\frac{x}{y+3} = \frac{7}{5}$

35. _____

A. $\frac{5}{y+3} = \frac{7}{x}$

B. $\frac{y+3}{x} = \frac{7}{5}$

C. $5x = 7(y + 3)$

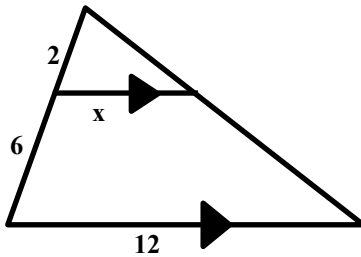
D. $7y + 21 = 5x$

36. Solve for x $\frac{3x+1}{8} = \frac{2x+3}{16}$

36. _____

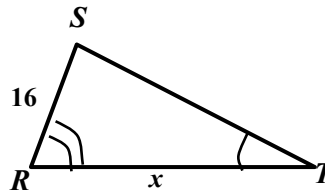
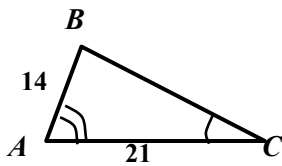
37. Solve for x to the nearest tenth:

37. _____



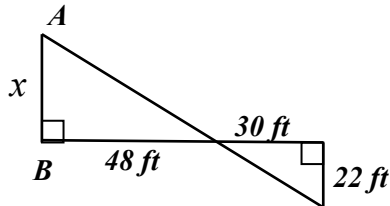
38. Solve for x

38. _____



39. Solve for x

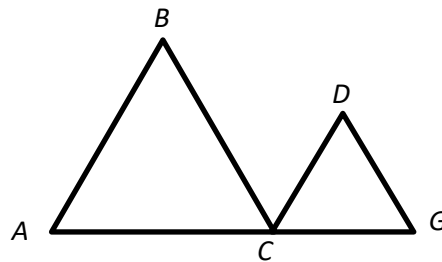
39. _____



40. Complete the proof.

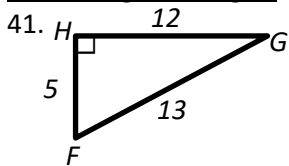
Given: $\overline{AB} \parallel \overline{CD}$ and $\overline{BC} \parallel \overline{DG}$

Prove: $\triangle ABC \sim \triangle CDG$



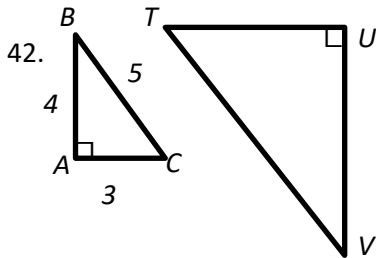
Statements	Reasons
1. $\overline{AB} \parallel \overline{CD}$ and $\overline{BC} \parallel \overline{DG}$	1. Given
2. $\angle A \cong \angle DCG$ and $\angle G \cong \angle$ _____	2. _____
3. _____	3. _____

Unit 7- Right Triangles



Select if the statement is True or False

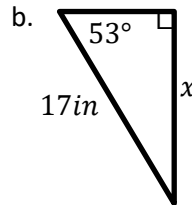
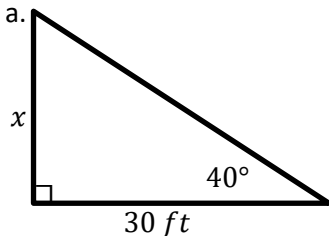
Statement	TRUE	FALSE	Statement	TRUE	FALSE
a. $\sin F = \frac{12}{13}$			e. $HG = 13 \sin G$		
b. $\tan G = \frac{12}{5}$			f. $5^2 + 13^2 = 12^2$		
c. $\cos F = \sin G$			g. $HF = 13 \cos F$		
d. $\sin F = \cos F$			h. $\cos G = \frac{12}{13}$		



Triangle ABC is similar to Triangle UVT. Which Angles Tangent equals $\frac{4}{3}$. You should have 2 answers

42. _____

43. Find the length of x to the nearest tenth.



43a. _____

43b. _____

44. Find the missing values and round trig values to the nearest 10 thousandth and angles to the nearest whole number.

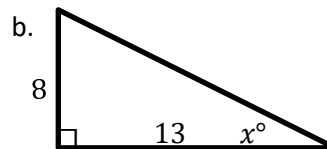
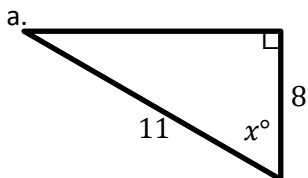
a. $\sin 39^\circ =$ _____

b. $\cos 39^\circ =$ _____

c. $\sin 51^\circ =$ _____

d. $\cos 51^\circ =$ _____

45. Find the value of x to the nearest whole number.



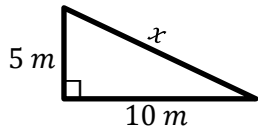
45a. _____

45b. _____

46. A kite is flying at an angle of elevation of 40° . Ignoring the sag in the string, find the height of the kite (to the nearest foot) if 53 ft of string have been let out.

46. _____

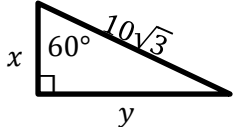
47. The height of a ramp is 5 m. The ramp will start 10 m from the door on the ground. How long must the ramp be to the nearest meter?



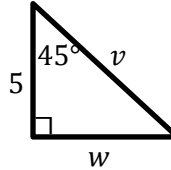
47. _____

48. Solve for the variables.

a.



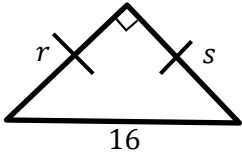
b.



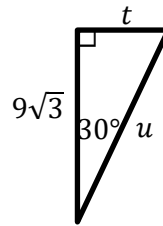
a. $x = \underline{\hspace{1cm}}$ $y = \underline{\hspace{1cm}}$

b. $v = \underline{\hspace{1cm}}$ $w = \underline{\hspace{1cm}}$

c.



d.



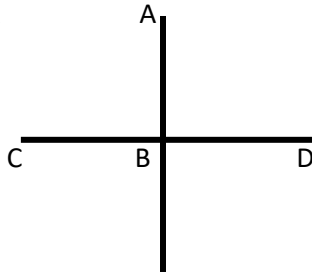
c. $r = \underline{\hspace{1cm}}$ $s = \underline{\hspace{1cm}}$

d. $t = \underline{\hspace{1cm}}$ $u = \underline{\hspace{1cm}}$

#49-50 Practice Proofs.

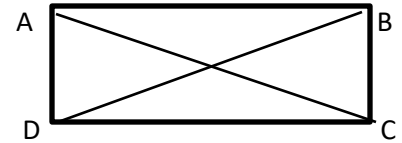
49. Given: AB is the Perpendicular Bisector of CD

Prove: $AC \cong DA$



50. Given: ABCD is a Rectangle

Prove: $AC \cong BD$



Statements	Reasons
1. ABCD is a rectangle	1.
2. ABCD is a parallelogram	2.
3.	3. Opposite sides of a Parallelogram are congruent
4. $BC \cong BC$	4.
5. $\angle ABC$ & $\angle DCB$ are Right angles	5.
6. $\angle ABC \cong \angle DCB$	6.
7.	7. SAS
8. $AC \cong BD$	8.