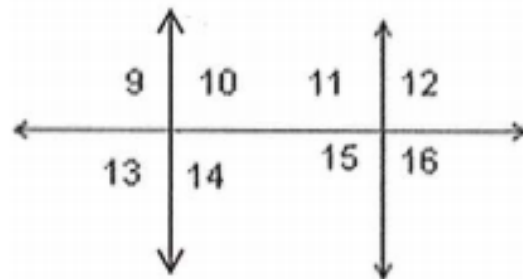


Unit 4-Review- (parallel lines and transversals, congruent triangles, midsegments)

1. Identify each set of angles below as corresponding, vertical, alternate interior, alternate exterior, consecutive or linear pair. (use the figure to the right to answer a-h)

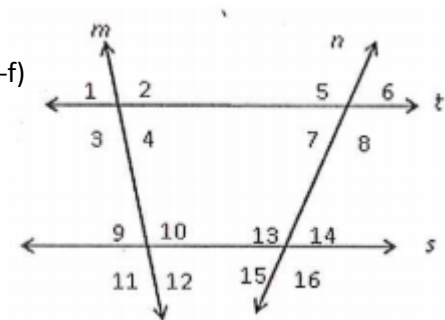
- a. $\angle 9$ and $\angle 16$ **ALTERNATE EXTERIOR**
 b. $\angle 9$ and $\angle 11$ **CORRESPONDING**
 c. $\angle 15$ and $\angle 11$ **LINEAR PAIR**
 d. $\angle 14$ and $\angle 15$ **CONSECUTIVE INTERIOR**
 e. $\angle 10$ and $\angle 15$ **ALTERNATE INTERIOR**
 f. $\angle 13$ and $\angle 14$ **LINEAR PAIR**
 g. $\angle 12$ and $\angle 15$ **VERTICAL ANGLES**
 h. $\angle 14$ and $\angle 11$ **ALTERNATE INTERIOR**



2. Solve for the missing angle value given: $m\angle 2 = 98^\circ$ and $m\angle 6 = 83^\circ$

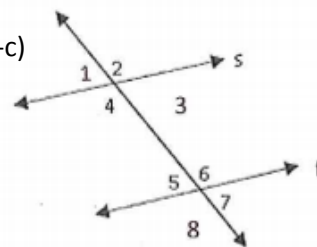
(use the figure to the right to answer a-f)

- a. $m\angle 3 = 98^\circ$
 b. $m\angle 5 = 97^\circ$
 c. $m\angle 10 = 98^\circ$
 d. $m\angle 7 = 83^\circ$
 e. $m\angle 8 = 82^\circ$
 f. $m\angle 16 = 97^\circ$

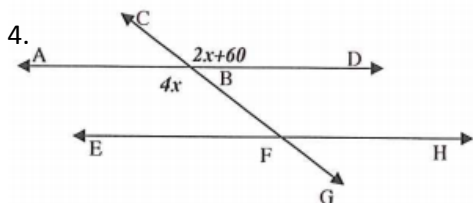


3. Find the value of x , given that $s \parallel t$ (use the figure to the right to solve a-c)

- a. $m\angle 4 = 77^\circ, m\angle 8 = 4x + 57$ **$x=5$**
 b. $m\angle 3 = 5x + 13, m\angle 5 = 53^\circ$ **$x=8$**
 c. $m\angle 1 = 6x - 5, m\angle 7 = 115^\circ$ **$x=20$**

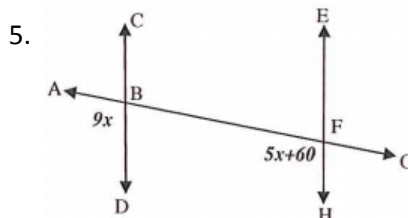


Solve for the missing variable and the missing angle values that are indicated (#4-7)



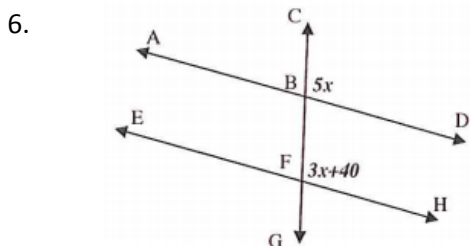
Equation: $2x+60=4x$

$x=30$ $m\angle CBD = 120$ $m\angle ABF = 120$



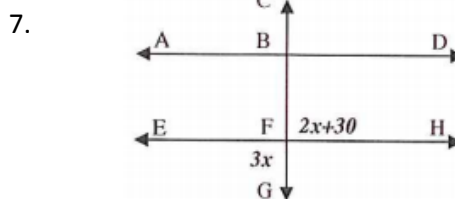
Equation: $9x=5x+60$

$x=15$ $m\angle HFB = 135$ $m\angle ABD = 135$



Equation: $5x=3x+40$

$x=20$ $m\angle CBD = 100$ $m\angle ABF = 100$



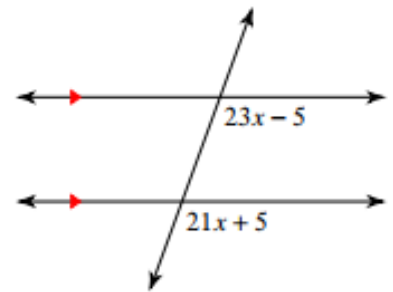
Equation: $3x=2x+30$

$x=30$ $m\angle HFB = 90$ $m\angle EFG = 90$

Fill in the following proof (#8-9)

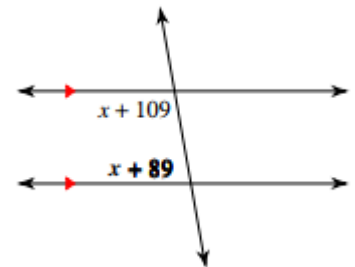
8. Given the diagram below, prove that $x=5$

Statement	Reason
1. $23x-5=21x+5$	1. CORRESPONDING
2. $23x-21x-5=21x-21x+5$	2. Subtraction Property
3. $2x-5=5$	3. SUBSTITUTION
4. $2x-5+5=5+5$	4. Addition Property
5. $2x=10$	5. SUBSTITUTION
6. $2x/2=10/2$	6. DIVISION PROPERTY
7. $x=5$	7. SUBSTITUTION

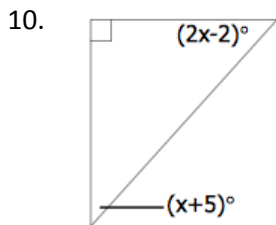


9. Give the diagram below, prove that the bold angle is 80°

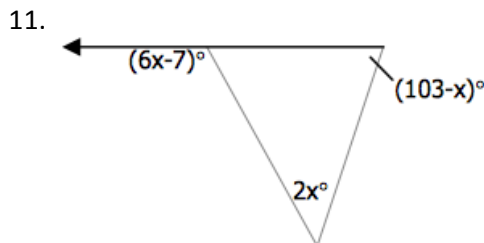
Statement	Reason
1. $x+109+x+89=180$	1. CONSECUTIVE INTERIOR
2. $2x+198=180$	2. SUBSTITUTION
3. $2x+198-198=180-198$	3. SUBTRACTION PROPERTY
4. $2x=-18$	4. Substitution
5. $2x/2=-18/2$	5. Division Property
6. $x=-9$	6. SUBSTITUTION
7. $(-9)+89=80^\circ$	7. SUBSTITUTION



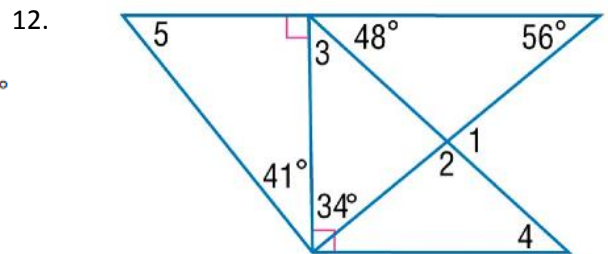
Solve for the indicated values (#10-14)



$x=29$

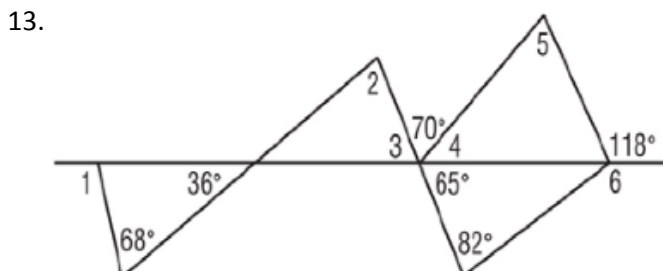


$x=22$



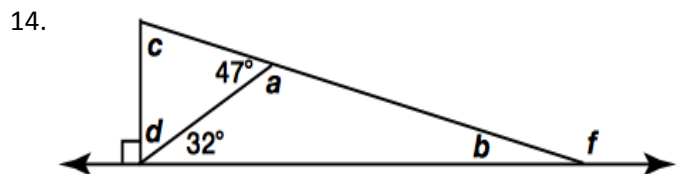
$m\angle 1 = 104$ $m\angle 2 = 76$ $m\angle 3 = 42$

$m\angle 4 = 48$ $m\angle 5 = 49$



$m\angle 1 = 104$ $m\angle 2 = 79$ $m\angle 3 = 65$

$m\angle 4 = 45$ $m\angle 5 = 73$ $m\angle 6 = 147$



$a=133$ $b=15$ $c=75$

$d=58$ $f=165$

Determine the distance or midpoint of the following line segments (#15-17)

15. (4, 6) (1,5)

Distance: 3.2

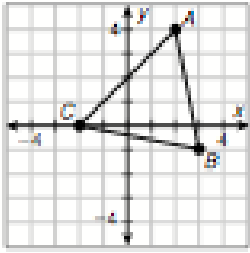
Midpoint: (5/2, 11/2) or (2.5, 5.5)

16. (7, -5) (9, -1)

Distance: 4.5

Midpoint: (8, -3)

17.



AB=5.1

BC=5.1

AC=5.7

Perimeter of $\triangle ABC = 5.1 + 5.1 + 5.7 = 15.9$

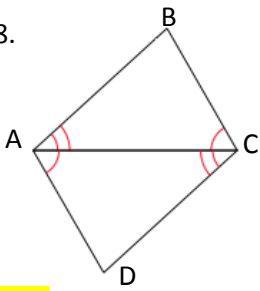
Determine if the following figures are congruent, if they are give a congruence statement and why the two shapes are congruent.

a. Are the triangles congruent

b. Give a congruence statement

c. Why are the triangles congruent

18.

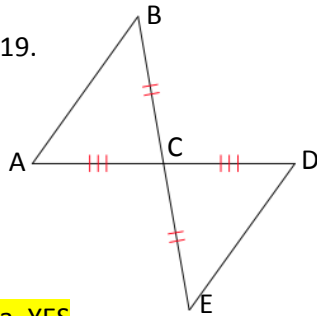


a. YES

b. $\triangle ABC \cong \triangle CDA$

c. ASA

19.

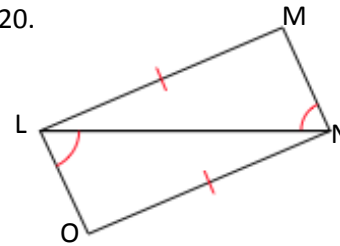


a. YES

b. $\triangle ABC \cong \triangle DEC$

c. SAS

20.

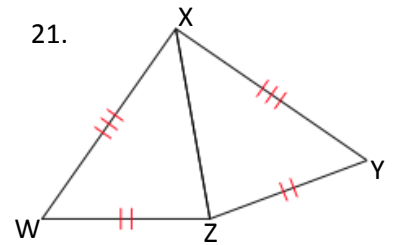


a. NO

b. _____

c. _____

21.

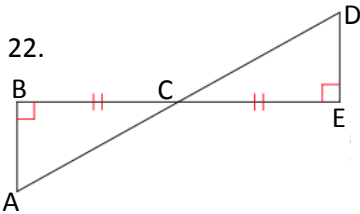


a. YES

b. $\triangle XWZ \cong \triangle XYZ$

c. SSS

22.

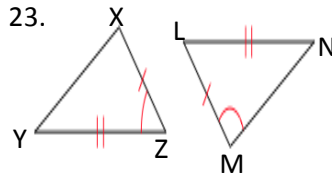


a. YES

b. $\triangle ABC \cong \triangle CDE$

c. ASA

23.

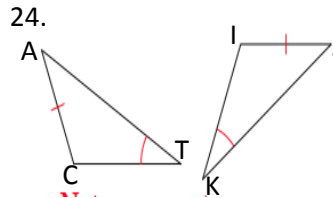


a. NO

b. _____

c. _____

24.

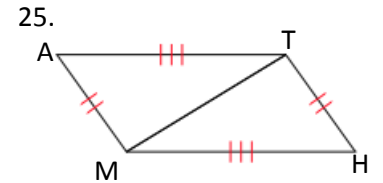


a. NO

b. _____

c. _____

25.



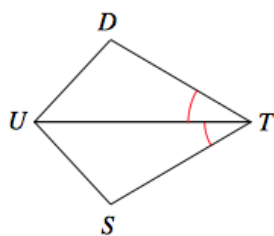
a. YES

b. $\triangle MAT \cong \triangle THM$

c. SSS

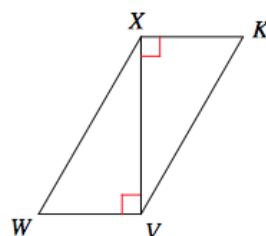
What additional information is needed in order to prove that the triangles are congruent by the Theorems stated:

26. ASA



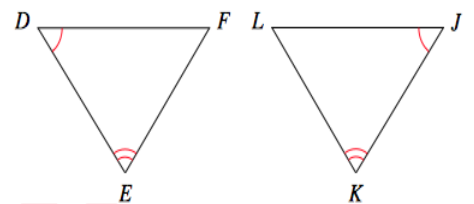
$\angle DUT \cong \angle SUT$

27. SAS



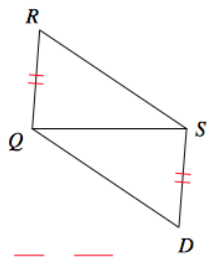
$\overline{XK} \cong \overline{VW}$

28. ASA



$\overline{DE} \cong \overline{JK}$

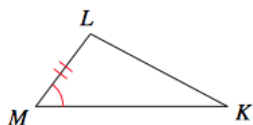
29. SSS



$\overline{RS} \cong \overline{DQ}$

30.

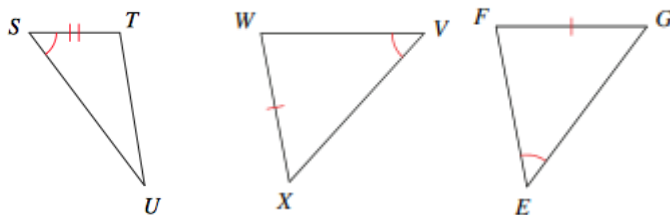
ASA



$\angle L \cong \angle T$

31.

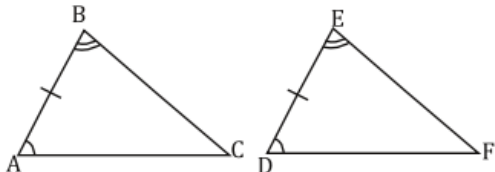
AAS



$\angle W \cong \angle F$ or $\angle X \cong \angle E$

Prove that the triangles are congruent by: SSS, SAS, AAS, or ASA

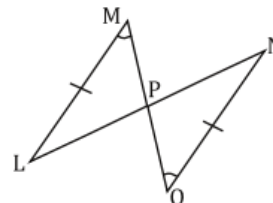
32. Given: $\overline{AB} \cong \overline{DE}$, $\angle B \cong \angle E$, and $\angle A \cong \angle D$



Prove: $\triangle ABC \cong \triangle DEF$

Statement	Reason
1. $\overline{AB} \cong \overline{DE}$	1. Given
2. $\angle B \cong \angle E$	2. Given
3. $\angle A \cong \angle D$	3. GIVEN
4. $\triangle ABC \cong \triangle DEF$.	4. ASA

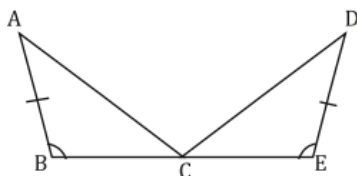
33. Given: $\overline{LM} \cong \overline{NO}$, and $\angle M \cong \angle O$



Prove: $\triangle MPL \cong \triangle NPO$

Statement	Reason
1. $\overline{LM} \cong \overline{NO}$	1. GIVEN
2. $\angle M \cong \angle O$	2. Given
3. $\angle MPL \cong \angle OPN$	3. VERTICAL ANGLES
4. $\triangle MPL \cong \triangle NPO$.	4. AAS

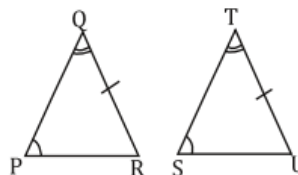
34. Given: C is the midpoint of \overline{BE} , $\angle B \cong \angle E$, and $\overline{AB} \cong \overline{DE}$



Prove: $\triangle ABC \cong \triangle DEC$

Statement	Reason
1. $\angle B \cong \angle E$	1. GIVEN
2. $\overline{AB} \cong \overline{DE}$	2. GIVEN
3. C is a midpoint	3. Given
4. $\overline{BC} \cong \overline{CE}$	4. Midpoint
5. $\triangle ABC \cong \triangle DEC$	5. SAS

35. Given: $\angle P \cong \angle S$, $\angle Q \cong \angle T$, and $\overline{QR} \cong \overline{TU}$

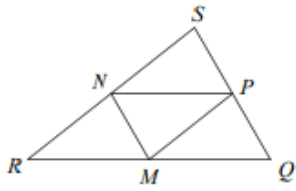


Prove: $\triangle PQR \cong \triangle STU$

Statement	Reason
1. $\angle P \cong \angle S$	1. GIVEN
2. $\angle Q \cong \angle T$	2. GIVEN
3. $\overline{QR} \cong \overline{TU}$	3. GIVEN
4. $\triangle PQR \cong \triangle STU$	4. AAS

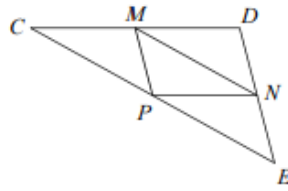
In each triangle, M, N, and P are midpoints of the sides. Name a segment parallel to the one given.

35.



$\overline{MN} \parallel \overline{QS}$

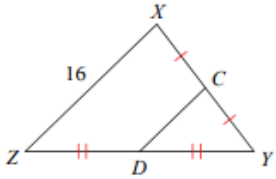
36.



$\overline{PN} \parallel \overline{CD}$

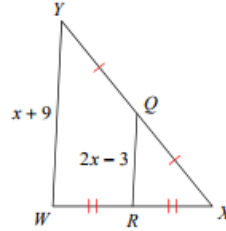
Find the given length indicated.

37.



$CD=8$

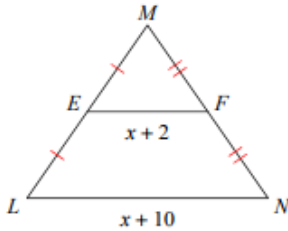
38.



$x=5$

$QR=7$

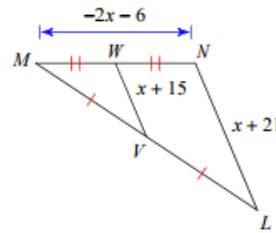
39.



$x=6$

$LN=16$

40.



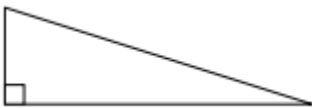
$x=-9$

$NL=12$

$MN=12$

Identify the triangle by its side and angle.

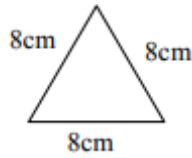
41.



RIGHT

SCALENE

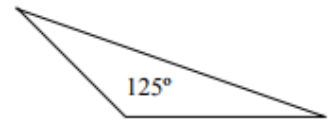
42.



EQUILATERAL

EQUIANGULAR

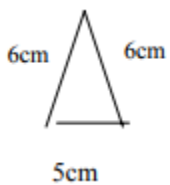
43.



OBTUSE

SCALENE

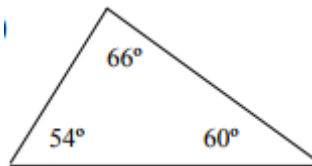
44.



ISOSCELES

ACUTE

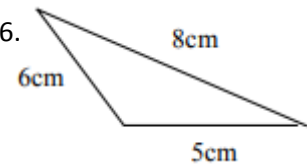
45.



SCALENE

ACUTE

46.

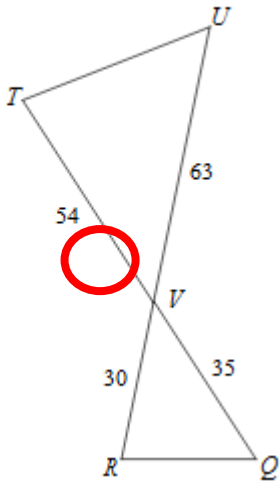


OBTUSE

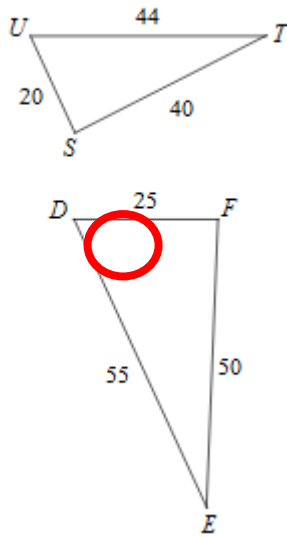
SCALENE

Determine whether or not each pair of triangles are similar. If they are similar, state why. (SSS~, SAS~, AA~).

48. $\triangle VUT \sim \triangle VQR$



49. $\triangle DEF \sim \triangle UTS$



AA~).

50.

Similar: YES or NO

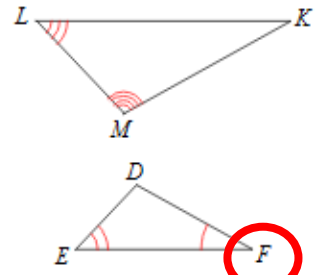
Similar: YES or NO

Similar: YES or NO

AA

SSS

22) $\triangle KLM \sim \triangle FED$

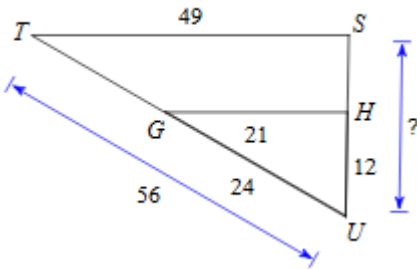


Similar: YES or NO

SAS

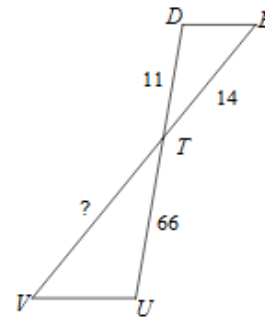
Each triangle below is similar. Find the length of the missing side.

23)



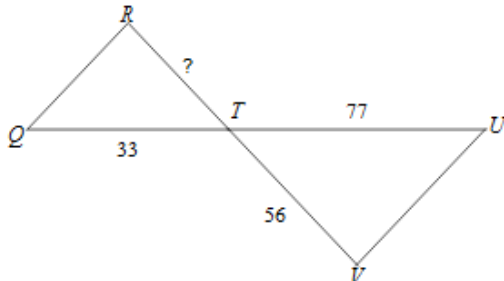
? = 28

52. $\triangle TUV \sim \triangle TDE$



? = 84

53. $\triangle TUV \sim \triangle TQR$



? = 24