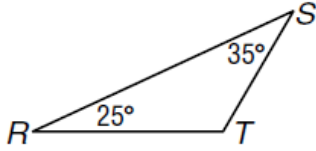


Geometry A
4.1 Angles of Triangles

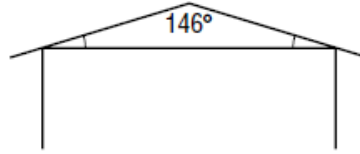
ASSIGNMENT

Name _____
 Hour _____ Date _____

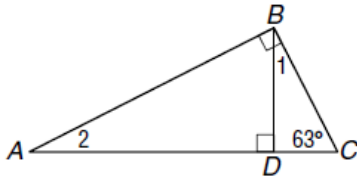
1. Find $m\angle T$.



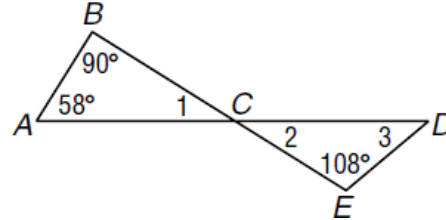
2. Find the measures of the missing angles.



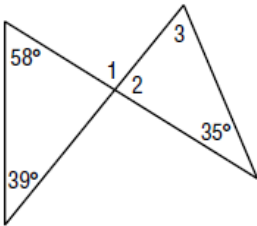
3. Find the measures of the numbered angles.



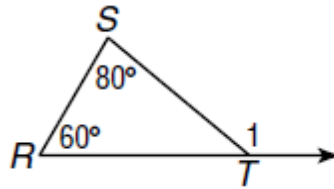
4. Find the measures of the numbered angles.



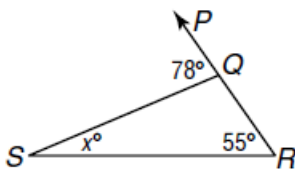
5. Find the measures of the numbered angles.



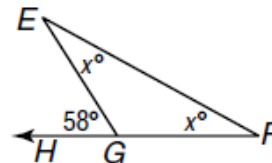
6. Find $m\angle 1$



7. Find x .



8. Find x .



Review:

9. Suppose $\angle 1$ and $\angle 2$ are vertical angles. If $m\angle 1 = 4x + 2$ and $m\angle 2 = 8x - 14$, find $m\angle 2$.

10. Suppose R is between Y and W . If $RY = 3x - 10$, $RW = 66$, and $YW = 5x + 6$, find RY .

Geometry A
4.2 Congruent Triangles

Name _____
Hour _____ Date _____

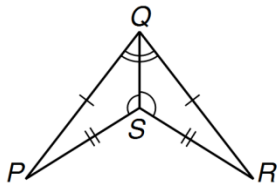
ASSIGNMENT

1. If $\triangle RTY \cong \triangle KNB$ complete each pair of congruent parts:

$\angle R \cong$ _____ $\cong \angle N$ $\angle Y \cong$ _____
 $\overline{RT} \cong$ _____ $\overline{RY} \cong$ _____ $\cong \overline{NB}$

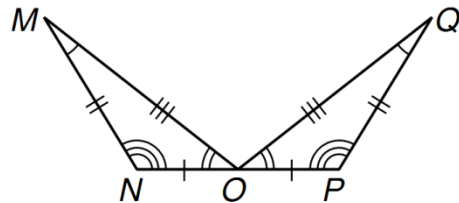
Identify the congruent triangles in each diagram.

2.



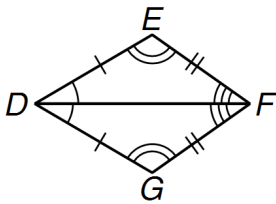
$\triangle SQP \cong$ _____

3.



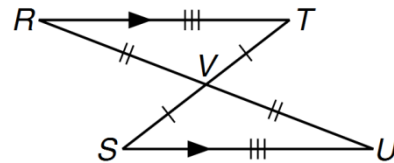
$\triangle MNO \cong$ _____

4.



$\triangle EFD \cong$ _____

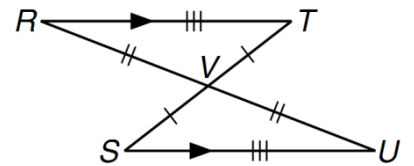
5.



$\triangle RVT \cong$ _____

6. Using the diagram on the right, identify each pair of congruent parts:

$\angle R \cong$ _____ $\angle T \cong$ _____ $\angle TVR \cong$ _____
 $\overline{RT} \cong$ _____ $\overline{TV} \cong$ _____ $\overline{VR} \cong$ _____



Review:

For #7-10, select the property, definition, postulate, or theorem from the box below that justifies each statement. Write the property, definition, postulate, or theorem on the line provided.

reflexive property	subtraction property	distributive property
symmetric property	multiplication property	midpoint theorem
transitive property	division property	definition of an angle bisector
addition property	substitution property	vertical angles theorem
segment addition postulate	angle addition postulate	complement theorem
supplement theorem		

7. If $m\angle 4 = m\angle 5$, then $m\angle 4 + 20 = m\angle 5 + 20$ _____

8. $AD = AD$ _____

9. If $\overline{AB} \cong \overline{BC}$ and $\overline{BC} \cong \overline{CE}$, then $\overline{AB} \cong \overline{CE}$ _____

10. If $3(x + 2) = 60$, then $3x + 6 = 60$ _____

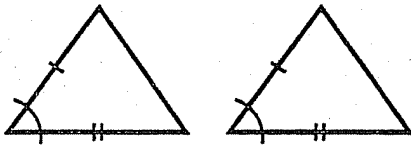
ASSIGNMENT

Swimming Through Triangles

What household appliance will never be able to swim?

To find out, identify whether each pair of triangles is congruent by SSS, SAS, or ASA. Circle the letter that represents this characteristic. Place the circled letters in the blanks at the bottom of the page above the corresponding problem numbers.

1.

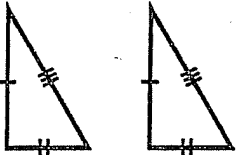


(O) SSS

(T) SAS

(L) ASA

2.

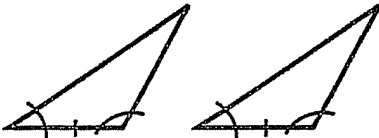


(H) SSS

(K) SAS

(M) ASA

3.



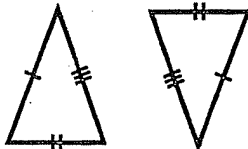
(Y) SSS

(B) SAS

(E) ASA

4.

For
tri

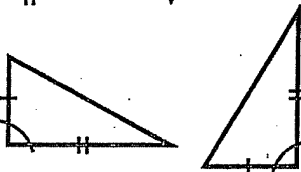


(S) SSS

(A) SAS

(C) ASA

5.



(J) SSS

(I) SAS

(T) ASA

6.

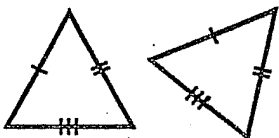


(W) SSS

(R) SAS

(N) ASA

7.



(K) SSS

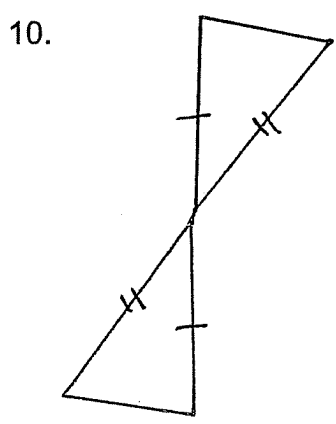
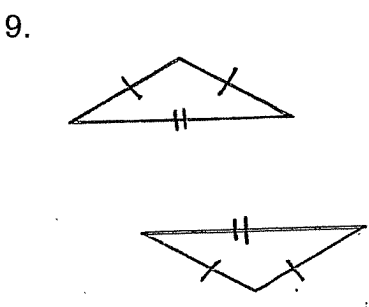
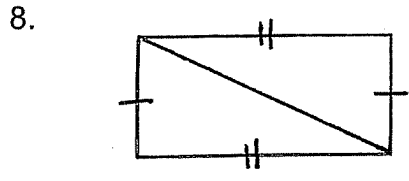
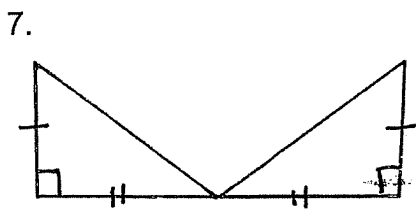
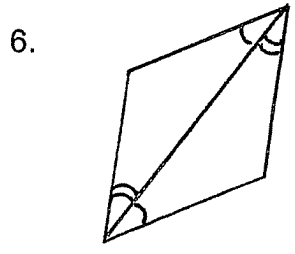
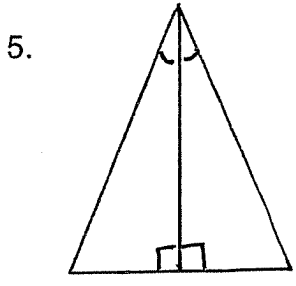
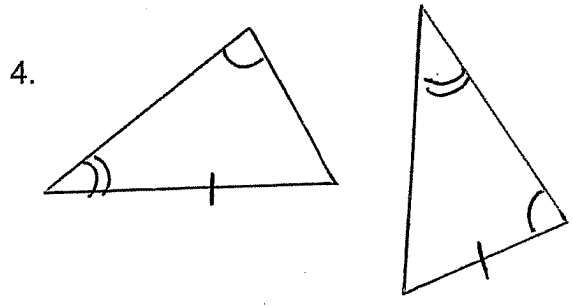
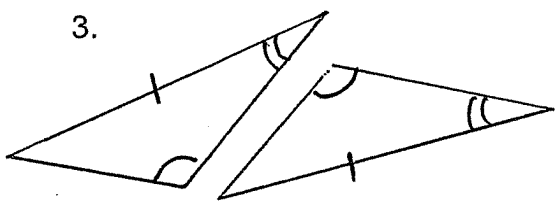
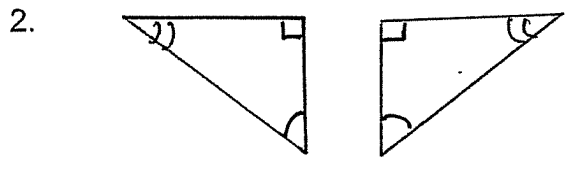
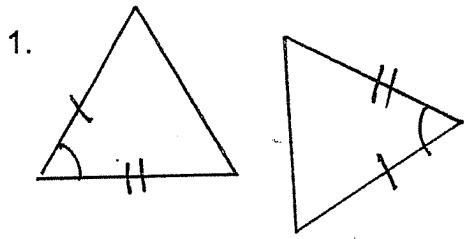
(M) SAS

(F) ASA

1 2 3

4 5 6 7

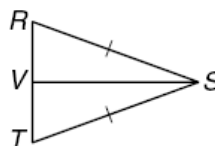
Identify whether each pair of triangle are congruent by SSS, SAS, ASA, AAS or HL. Otherwise, write "not enough information."



Geometry A
4.4 Triangle Congruence Proofs

Name _____
Hour _____ Date _____

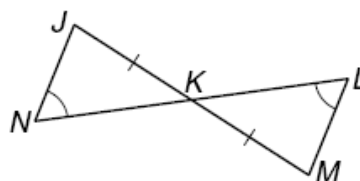
ASSIGNMENT



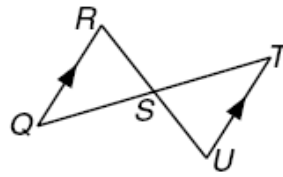
1. Given: $\overline{RS} \cong \overline{TS}$, V is the midpoint of \overline{RT}
Prove: $\triangle RSV \cong \triangle TSV$

Statements	Reasons
1. $\overline{RS} \cong \overline{TS}$	1.
2.	2. Given
3.	3. Midpoint Theorem
4. $\overline{VS} \cong \overline{VS}$	4.
5. $\triangle RSV \cong \triangle TSV$	5.

2. Given: $\overline{JK} \cong \overline{MK}$, $\angle N \cong \angle L$
Prove: $\triangle JKN \cong \triangle MKL$



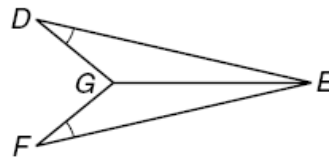
Statements	Reasons
1. $\overline{JK} \cong \overline{MK}$	1.
2. $\angle N \cong \angle L$	2.
3. $\angle JKN \cong \angle MKL$	3.
4. $\triangle JKN \cong \triangle MKL$	4.



3. Given: $\overline{QR} \parallel \overline{TU}$, S is the midpoint of \overline{QT}
 Prove: $\overline{RS} \cong \overline{US}$

Statements	Reasons
1.	1. Given
2. $\angle Q \cong \angle T$	2.
3. S is the midpoint of \overline{QT}	3.
4.	4. Midpoint Theorem
5.	5. Vertical Angles Theorem
6. $\triangle QSR \cong \triangle TSU$	6.
7. $\overline{RS} \cong \overline{US}$	

4. Given: $\angle D \cong \angle F$, \overline{GE} bisects $\angle DEF$
 Prove: $\overline{DG} \cong \overline{FG}$



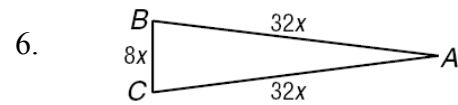
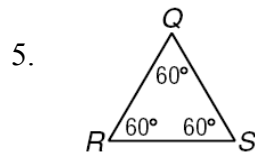
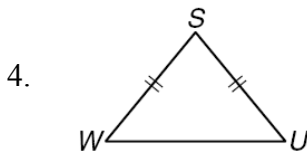
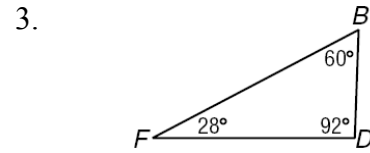
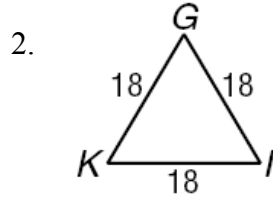
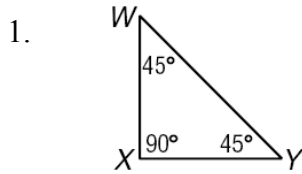
Statements	Reasons
1. $\angle D \cong \angle F$	1.
2. \overline{GE} bisects $\angle DEF$	2.
3.	3. Definition of Angle Bisector
4.	4. Reflexive Property
5.	5.
6. $\overline{DG} \cong \overline{FG}$	6.

Geometry A
4.5 Isosceles and Equilateral Triangles

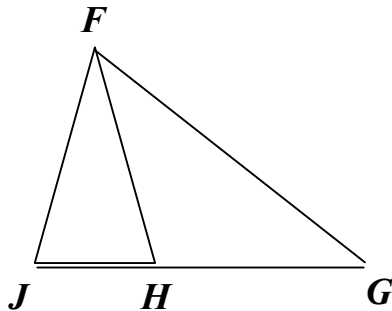
Name _____
Hour _____ Date _____

ASSIGNMENT

Classify each triangle as scalene, isosceles, or equilateral.



7. Suppose that $\overline{FJ} \cong \overline{FH}$ and $\overline{HF} \cong \overline{HG}$. If $m\angle FHG = 126^\circ$, find $m\angle J$.



$m\angle J =$ _____

8. Find the value of y and the measure of each side of isosceles $\triangle ABC$ if $AB = BC$, $AB = 4y$, $BC = 3y + 2$, and $AC = 3y$. Show all organized work.

$y =$ _____ $AB =$ _____ $BC =$ _____ $AC =$ _____

9. Find the value of x and the measure of each side of equilateral $\triangle ABC$ if $AB = 3x - 2$, $BC = 2x + 4$, and $CA = x + 10$. Show all organized work.

$$x = \underline{\hspace{2cm}} \quad AB = \underline{\hspace{2cm}} \quad BC = \underline{\hspace{2cm}} \quad CA = \underline{\hspace{2cm}}$$

10. Find the value of x and the measure of each side of equilateral $\triangle RST$ if $RS = 2x + 2$, $ST = 3x$, and $TR = 5x - 4$. **Show all organized work.**

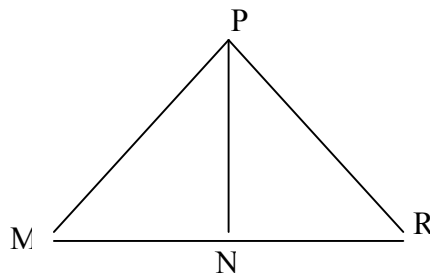
$$x = \underline{\hspace{2cm}} \quad RS = \underline{\hspace{2cm}} \quad ST = \underline{\hspace{2cm}} \quad TR = \underline{\hspace{2cm}}$$

11. Suppose $\triangle JKM$ is isosceles with vertex angle K . If $JK = 5x - 3$, $JM = 3x + 7$, and $KM = 2x + 9$, find the value of x , JK , JM , and KM .

$$x = \underline{\hspace{2cm}} \quad JK = \underline{\hspace{2cm}} \quad JM = \underline{\hspace{2cm}} \quad KM = \underline{\hspace{2cm}}$$

12. Given: $\triangle MPR$ is isosceles with vertex P ,
 $\overline{PN} \perp \overline{MR}$

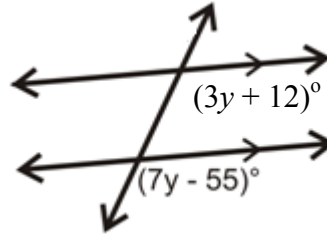
Prove: $\overline{MN} \cong \overline{NR}$



1. $\triangle MPR$ is isosceles with vertex P	1.
2. $\overline{PN} \perp \overline{MR}$	2.
3. $\overline{MP} \cong \overline{RP}$	3.
4. $\overline{PN} \cong \overline{PN}$	4.
5. $\triangle MPN \cong \triangle RPN$	5.
6. $\overline{MN} \cong \overline{NR}$	6.

Review:

13. Find the value of y in the figure at the right.



Multiple Choice:

14. Given: $m\angle A + m\angle B = 150$.

Conjecture: $\angle A$ and $\angle B$ are both acute angles.

Which one of the following is a counterexample to the conjecture?

A. $m\angle A = 100$ and $m\angle B = 50$

B. $m\angle A = 45$ and $m\angle B = 105$

C. $m\angle A = 65$ and $m\angle B = 85$

D. None of the above statements is a counterexample because the conjecture is true.

15. Which one of the following pairs of slopes are slopes corresponding to perpendicular lines?

A. $\frac{2}{3}$ and $\frac{9}{6}$

B. $-\frac{12}{8}$ and $-\frac{3}{2}$

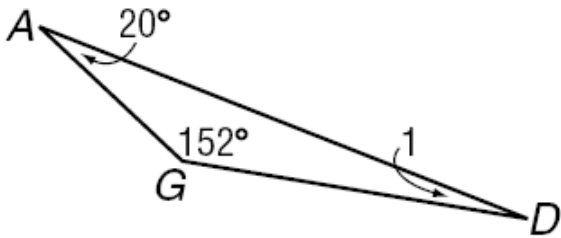
C. $-\frac{2}{3}$ and $\frac{12}{8}$

D. $\frac{10}{15}$ and $-\frac{3}{2}$

Geometry A
Unit 4 Review

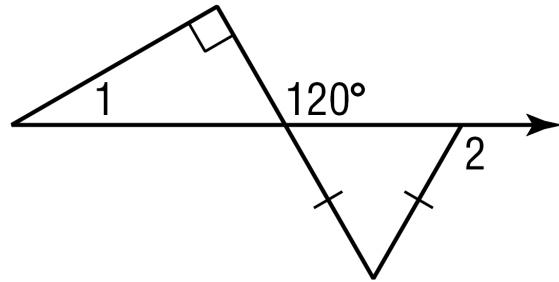
Name _____
Hour _____ Date _____

1. Find the measure of each indicated angle.



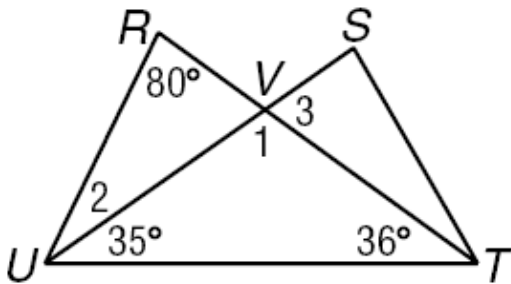
$m\angle 1 = \underline{\hspace{2cm}}$

2. Find the measure of each indicated angle.



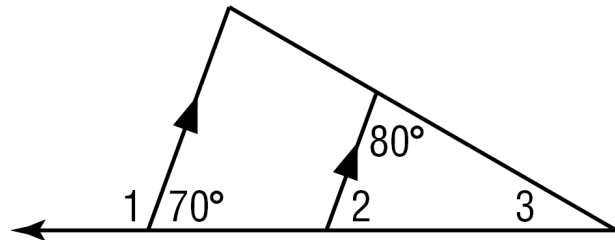
$m\angle 1 = \underline{\hspace{2cm}}$ $m\angle 2 = \underline{\hspace{2cm}}$

3. Find the measure of each indicated angle.



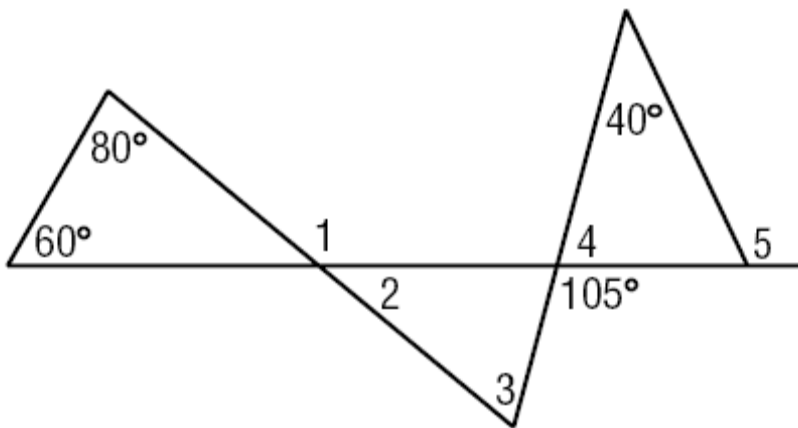
$m\angle 1 = \underline{\hspace{2cm}}$ $m\angle 2 = \underline{\hspace{2cm}}$ $m\angle 3 = \underline{\hspace{2cm}}$

4. Find the measure of each indicated angle.



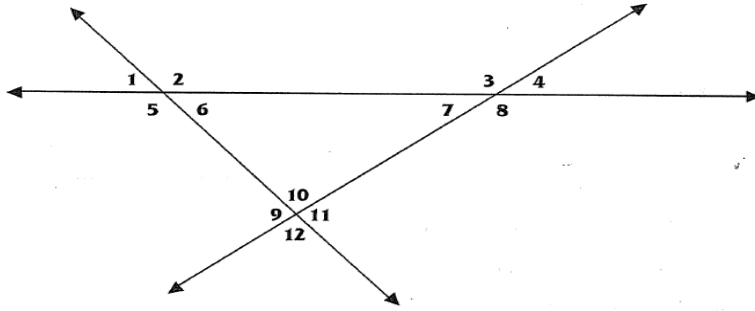
$m\angle 1 = \underline{\hspace{2cm}}$ $m\angle 2 = \underline{\hspace{2cm}}$ $m\angle 3 = \underline{\hspace{2cm}}$

5. Find the measure of each indicated angle.



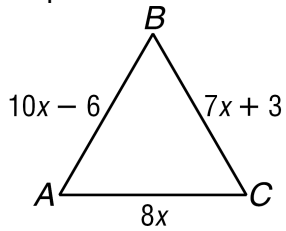
$m\angle 1 = \underline{\hspace{2cm}}$ $m\angle 2 = \underline{\hspace{2cm}}$ $m\angle 3 = \underline{\hspace{2cm}}$ $m\angle 4 = \underline{\hspace{2cm}}$ $m\angle 5 = \underline{\hspace{2cm}}$

6. Refer to the figure below. Find the measure of each indicated angle if $m\angle 6 = 51^\circ$ and $m\angle 8 = 134^\circ$.



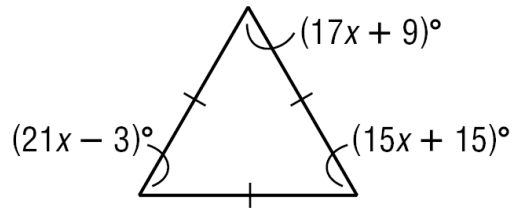
$m\angle 1 =$ _____ $m\angle 2 =$ _____ $m\angle 3 =$ _____ $m\angle 4 =$ _____ $m\angle 5 =$ _____
 $m\angle 7 =$ _____ $m\angle 9 =$ _____ $m\angle 10 =$ _____ $m\angle 11 =$ _____ $m\angle 12 =$ _____

7. Find the value of x , AB , BC , and AC if $\triangle ABC$ is equilateral.



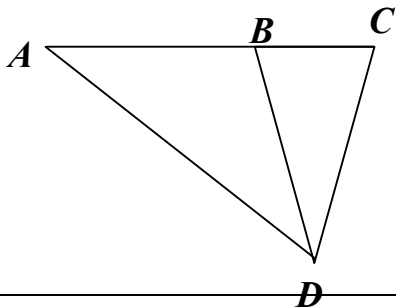
$x =$ _____ $AB =$ _____
 $BC =$ _____ $AC =$ _____

8. Find the value of x .



10. Suppose $\triangle JKM$ is isosceles with vertex angle K . If $m\angle J = 8x - 5$ and $m\angle M = 3x + 25$, find $m\angle K$.

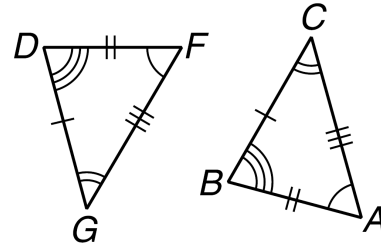
12. Suppose that $\overline{AB} \cong \overline{DB}$ and $\overline{CD} \cong \overline{BD}$. If $m\angle A = 31^\circ$, find $m\angle BDC$.



$$m\angle BDC = \underline{\hspace{2cm}}$$

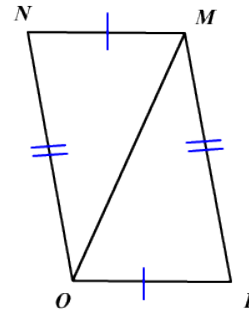
13. Identify the congruent triangles in the figure below.
Then name the corresponding congruent angles and congruent sides for the congruent triangles.

$$\begin{aligned} \Delta FGD &\cong \underline{\hspace{2cm}} \\ \angle FGD &\cong \underline{\hspace{2cm}} & \overline{DG} &\cong \underline{\hspace{2cm}} \\ \angle GDF &\cong \underline{\hspace{2cm}} & \overline{FD} &\cong \underline{\hspace{2cm}} \\ \angle DFG &\cong \underline{\hspace{2cm}} & \overline{FG} &\cong \underline{\hspace{2cm}} \end{aligned}$$

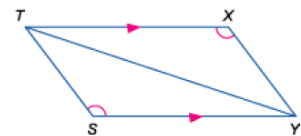
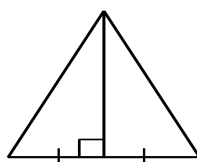
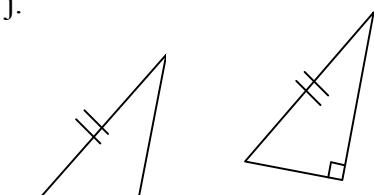
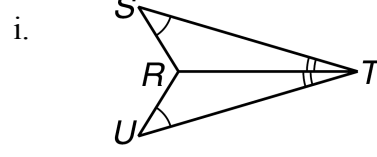
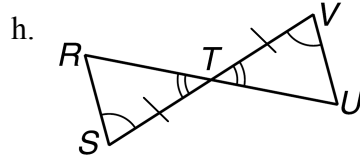
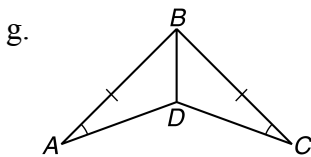
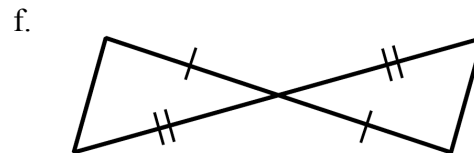
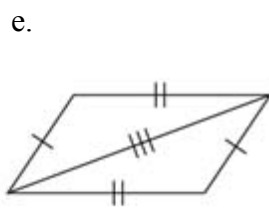
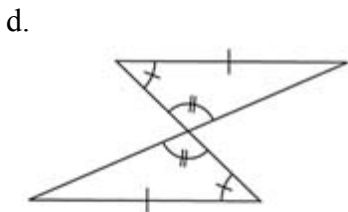
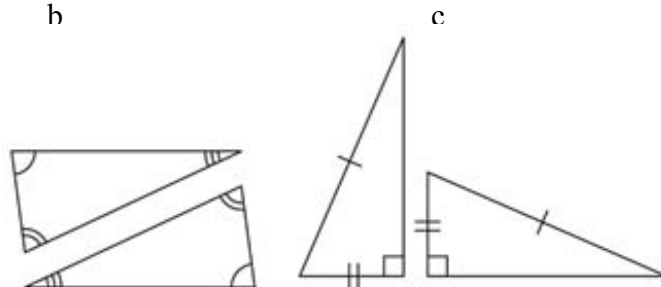
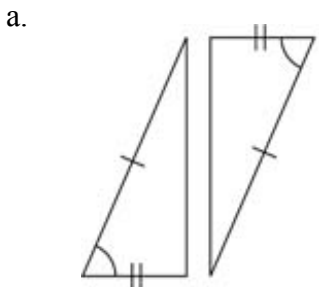


14. Identify the congruent triangles in the figure below.
Then name the corresponding congruent angles and congruent sides for the congruent triangles.

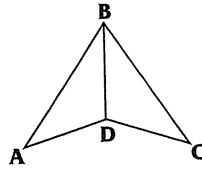
$$\begin{aligned} \Delta MNO &\cong \underline{\hspace{2cm}} \\ \angle NMO &\cong \underline{\hspace{2cm}} & \overline{MN} &\cong \underline{\hspace{2cm}} \\ \angle N &\cong \underline{\hspace{2cm}} & \overline{OM} &\cong \underline{\hspace{2cm}} \\ \angle NOM &\cong \underline{\hspace{2cm}} & \overline{NO} &\cong \underline{\hspace{2cm}} \end{aligned}$$



15. Determine whether you can prove that each pair of triangles is congruent by using **SSS**, **SAS**, **ASA**, **AAS**, or **HL**. If it is not possible to prove that the triangles are congruent, write **not possible**.

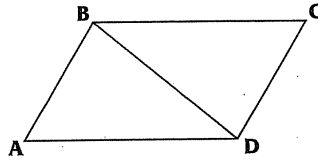


16. **Given:** \overline{BD} bisects $\angle ABC$
 $\overline{AB} \cong \overline{CB}$
Prove: $\triangle BDA \cong \triangle BDC$



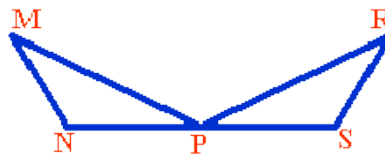
Statements	Reasons
1.	1.
2.	2.
3.	3.
4.	4.
5.	5.

17. **Given:** $\angle A \cong \angle C$
 $\angle ADB \cong \angle CBD$
Prove: $\triangle ADB \cong \triangle CBD$



Statements	Reasons
1.	1.
2.	2.
3.	3.
4.	4.

18. **Given:** P is the midpoint of \overline{NS}
 $\angle N \cong \angle S$
 $\angle MPN \cong \angle RPS$
Prove: $\overline{MN} \cong \overline{RS}$

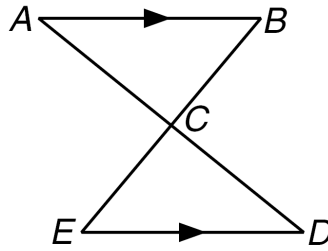


Statements	Reasons
1.	1.
2.	2.
3.	3.
4.	4.
5.	5.
6.	6.

19. Complete the following proof.

Given: $\overline{AB} \parallel \overline{DE}$
 \overline{AD} bisects \overline{BE}

Prove: $\overline{AC} \cong \overline{DC}$

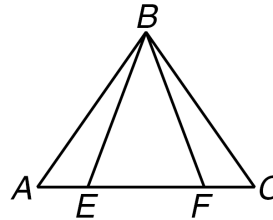


Statements	Reasons
1.	1.
2.	2.
3.	3.
4.	4.
5.	5.
6.	6.
7.	7.

20. Complete the following proof.

Given: $\overline{AE} \cong \overline{CF}$
 $\triangle ABC$ is isosceles with
 vertex angle $\angle B$.

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



Statements	Reasons
1. $\overline{AE} \cong \overline{CF}$	1.
2. $\triangle ABC$ is isosceles with vertex angle $\angle B$.	2.
3.	3. Definition of an Isosceles Triangle
4. $\angle A \cong \angle C$	4.
5. $\triangle ABE \cong \triangle CBF$	5.
6.	6.

