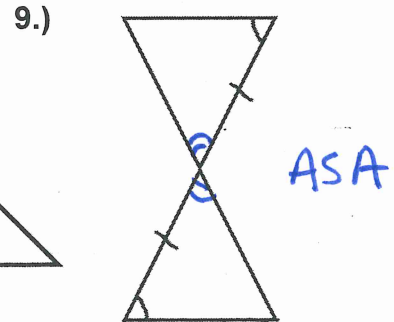
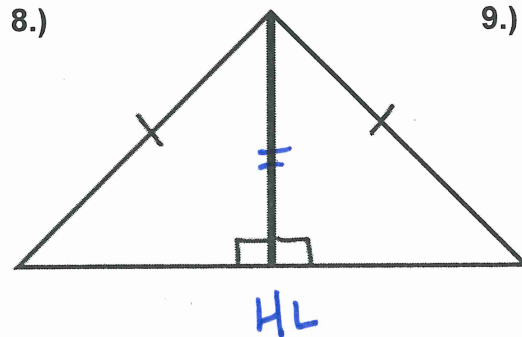
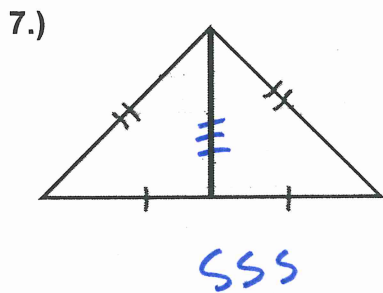
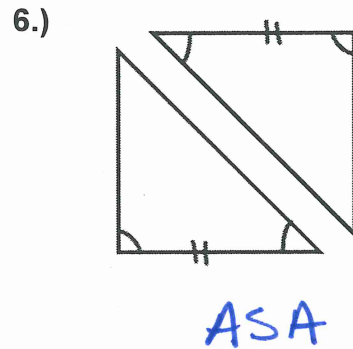
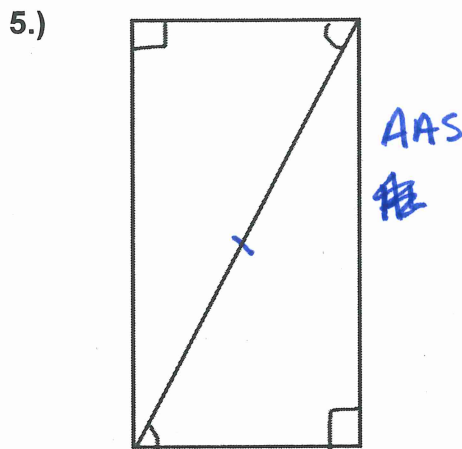
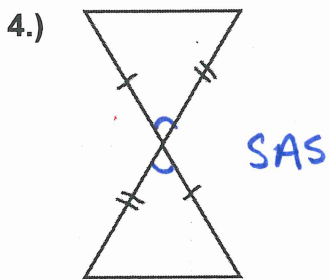
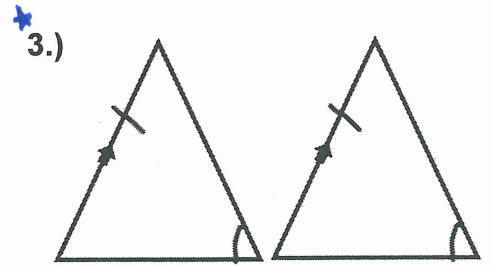
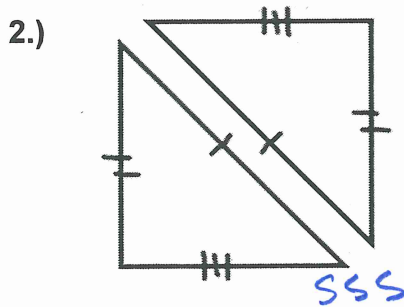
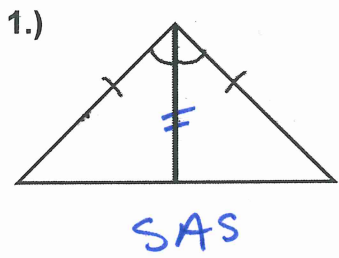


Geometry
Triangles Review

Name: Answer Key
Hour: _____

State which postulate or theorem (SSS, SAS, ASA, AAS, HL) can be used to prove that the two triangles are congruent. If the triangles cannot be proved congruent write "not possible".



10.) Given that $\triangle JKL \cong \triangle MNO$, complete the following statements:

a.) $\overline{JK} \cong \overline{MN}$

b.) $\angle JKL \cong \angle MNO$

c.) $\angle K \cong \angle N$

d.) $\overline{KL} \cong \overline{NO}$

e.) $\angle MON \cong \angle JLK$

f.) $\angle J \cong \angle M$

g.) If $\angle J = 45^\circ$ and $\angle O = 92^\circ$, then $\angle K = 43^\circ$

h.) If $\angle K = 2x + 3$ and $\angle O = 2x + 2$ and $\angle J = x + 5$, then $x = 34$

i.) If $JK = 12x - 6$ and $MN = 8x + 6$, then $x = .6$

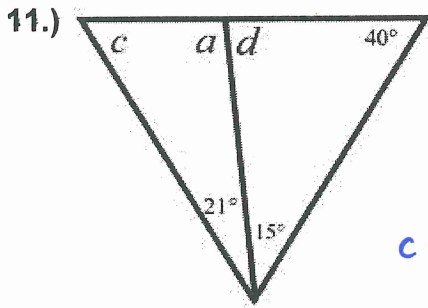
j.) If $LJ = 156$ and $OM = 12x + 12$, then $x = 12$

$\overline{LJ} \cong \overline{OM}$ $12x + 12 = 156$
 $12x = 144$ $x = 12$

$2x + 3 + 2x + 2 + x + 5 = 180$
 $5x + 10 = 180$
 $-10 \quad -10$
 $5x = 170$
 $x = 34$

$12x - 6 = 8x + 6$
 $-8x + 6 \quad -8x + 6$
 $20x = 12$
 $x = 12/20$

Use algebra to find the value of each variable. $\frac{140}{25} = 115$



$$d + 15 + 40 = 180$$

$$d = 115^\circ$$

$$a + 115 = 180$$

$$a = 65^\circ$$

$$c + 65 + 21 = 180$$

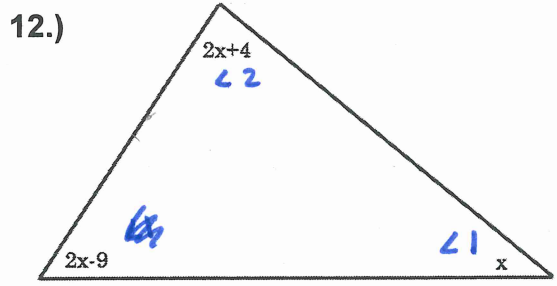
$$c = 180 - 86$$

$$c = 94^\circ$$

a = 65°

c = 94°

d = 115°



$$2x + 4 + 2x - 9 + x = 180$$

$$5x - 5 = 180$$

$$5x = 185$$

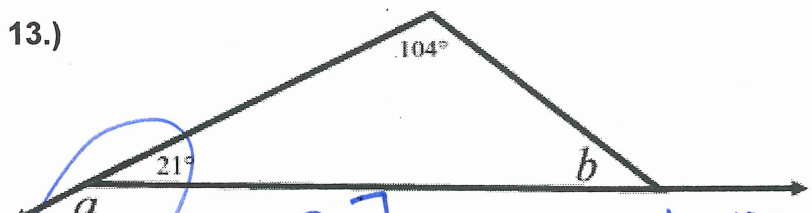
$$x = 37$$

x = 37

Angle 1 = 37°

Angle 2 = 78°

Choice {



[Linear Pair]

$$a + 21 = 180$$

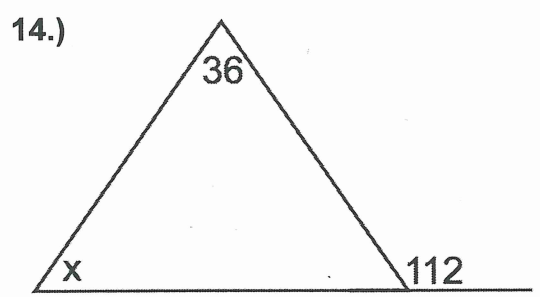
$$a = 159$$

$$104 + 21 + b = 180$$

$$b = 55$$

a = 159°

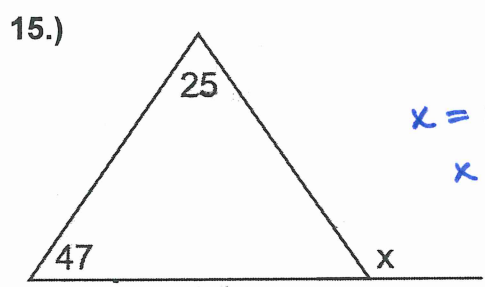
b = 55°



$$x + 36 = 112$$

$$x = 72^\circ$$

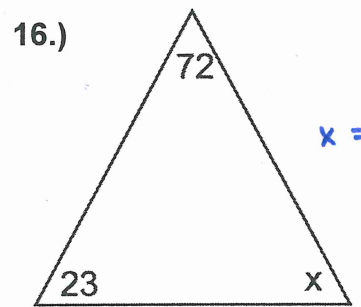
x = 72°



$$x = 25 + 47$$

$$x = 72$$

x = 72°



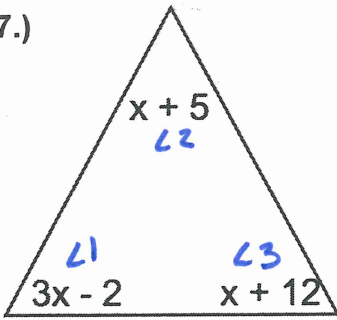
$$180 - 95$$

$$x = (23 + 72)$$

$$x = 95$$

x = 95° 85°

17.)



$$\begin{aligned} 5x + 15 &= 180 \\ 5x &= 165 \\ x &= 33 \end{aligned}$$

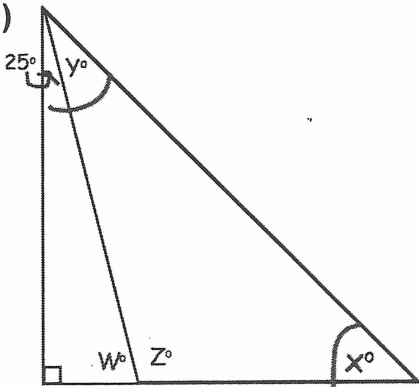
$x = \underline{33}$

Angle 1 = $\underline{97^\circ}$

Angle 2 = $\underline{38^\circ}$

Angle 3 = $\underline{45^\circ}$

19.)



$$\begin{aligned} x &= y + 25 \\ x + y + 25 &= 90 \end{aligned}$$

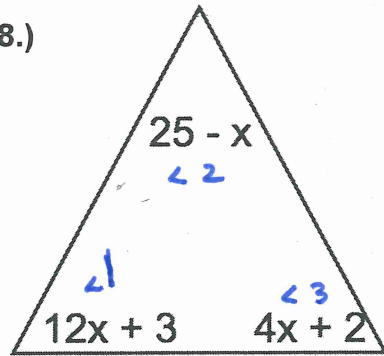
$w = \underline{65^\circ}$

$x = \underline{45^\circ}$

$y = \underline{20^\circ}$

$z = \underline{115^\circ}$

18.)



$$\begin{aligned} 15x + 30 &= 180 \\ 15x &= 150 \\ x &= 10 \end{aligned}$$

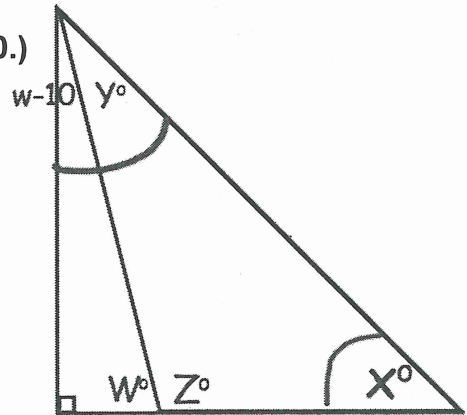
$x = \underline{10}$

Angle 1 = $\underline{123^\circ}$

Angle 2 = $\underline{15^\circ}$

Angle 3 = $\underline{42^\circ}$

20.)



$w = \underline{50^\circ}$

$x = \underline{45^\circ}$

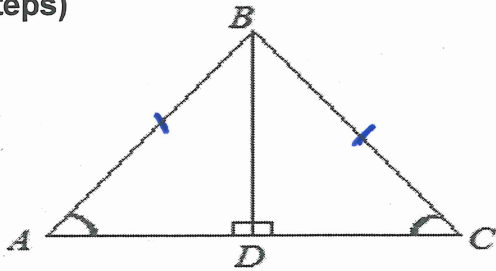
$y = \underline{5^\circ}$

$z = \underline{130^\circ}$

For each question below, complete a two-column proof.

21.) Prove: $\triangle ADB \cong \triangle CDB$

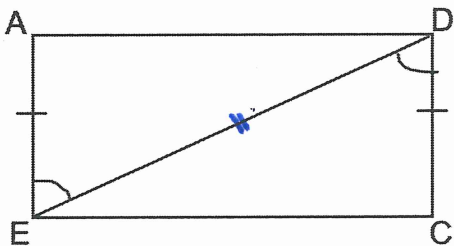
(4 steps)



Statement	Reason
1. $\angle A \cong \angle C$	1. Given
2. $\overline{AB} \cong \overline{BC}$	2. Base \angle 's Thm
3. $\angle ADB \cong \angle CDB$	3. Given
4. $\triangle ADB \cong \triangle CDB$	4. AAS

22.) Prove: $\angle ced \cong \angle ade$

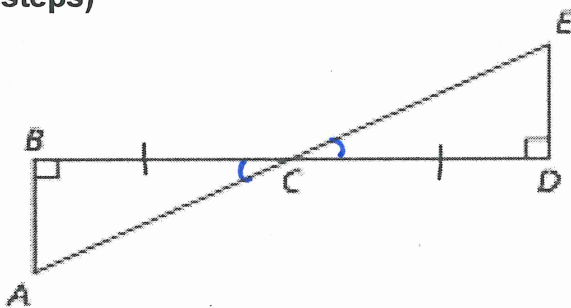
~~(4 steps)~~



Statements	Reasons
1. $\overline{AE} \cong \overline{DC}$	1. Given
2. $\angle AED \cong \angle CDE$	2. Given
3. $\overline{ED} \cong \overline{ED}$	3. Reflexive Property of Segment \cong
4. $\triangle AED \cong \triangle CDE$	4. SAS
5. $\angle CED \cong \angle ADE$	5. CPCTC

23.) Prove: $\triangle ACB \cong \triangle ECD$

(4 steps)

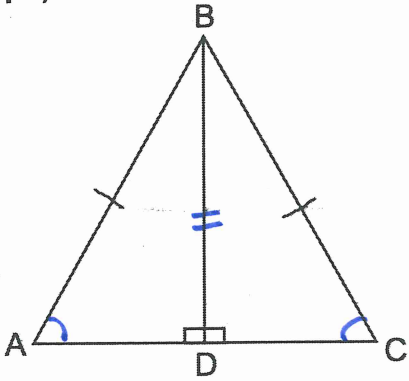


Statements	Reasons
1. $\angle BCA \cong \angle DCE$	1. Vertical \angle 's
2. $\overline{BC} \cong \overline{CD}$	2. Given
3. $\angle ABC \cong \angle EDC$	3. Given
4. $\triangle ACB \cong \triangle ECD$	4. ASA

24.)

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

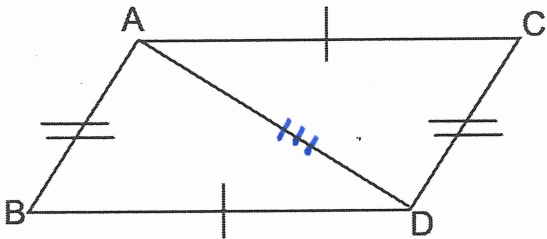
(5 steps)



Statements	Reasons
1. $\overline{AB} \cong \overline{BC}$	1. Given
2. $\angle ADB \cong \angle CDB$	2. Given
3. $\overline{BD} \cong \overline{BD}$	3. Reflexive Prop
4. $\angle BAD \cong \angle BCD$	4. Base \angle 's Converse Thm
5. $\triangle ABD \cong \triangle CBD$	5. HL $\triangle \cong$

25.) Prove: $\triangle ABD \cong \triangle DCA$

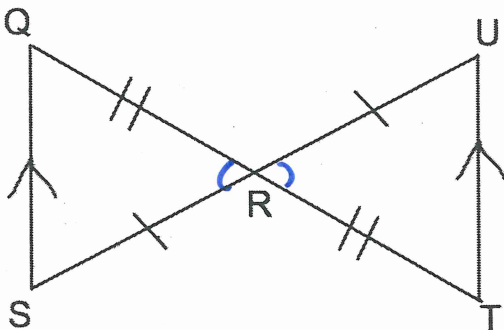
(3 steps)



Statements	Reasons
1. $\overline{AC} \cong \overline{AC}$	1. Given
2. $\overline{AB} \cong \overline{CD}$	2. Given
3. $\overline{AD} \cong \overline{AD}$	3. Reflexive Prop
4. $\triangle ABD \cong \triangle DCA$	4. SSS $\triangle \cong$

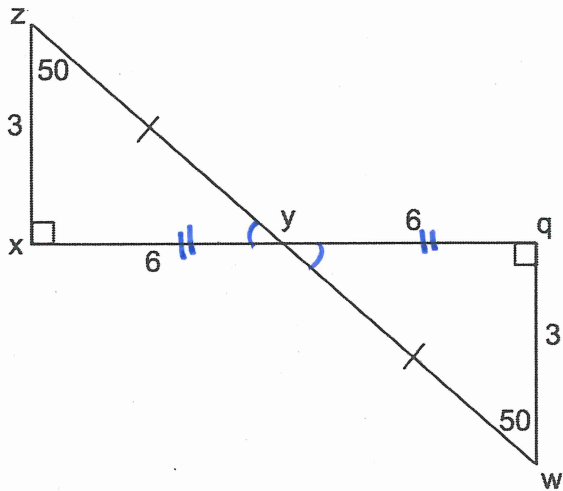
26.) Prove: $\triangle QRS \cong \triangle TRU$

(3 steps)



Statements	Reasons
1. $\overline{QR} \cong \overline{RU}$	1. Given
2. $\overline{RS} \cong \overline{RT}$	2. Given
3. $\angle QRS \cong \angle TRU$	3. Vertical \angle 's Thm
4. $\triangle QRS \cong \triangle TRU$	4. SAS

27.) Prove: $\triangle ZXY \cong \triangle WQY$



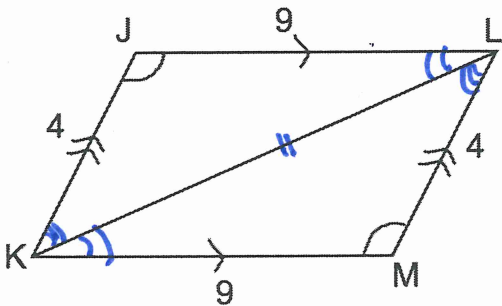
Statements

- 1.) * $XZ=3, QW=3$
* $\underline{\overline{ZY} \cong \overline{WY}}$
* $\angle Z=50, \angle W=50$
* $\underline{\overline{XY} \cong \overline{QY}}$
* $\angle X=90, \angle Q=90$
- 2.) $\underline{\overline{XZ} \cong \overline{QW}}$
- 3.) $\underline{\angle X \cong \angle Q}$
- 4.) $\underline{\overline{XY} \cong \overline{QY}}$
- 5.) $\angle Z \cong \angle W$
- 6.) $\underline{\angle XZY \cong \angle WQY}$
- 7.) $\triangle ZXY \cong \triangle WQY$

Reasons

- 1.) Given
- 2.) Defⁿ of \cong
- 3.) All right angles \cong
- 4.) Definition of \cong
- 5.) Defⁿ of \cong
- 6.) Vertical Angles
- 7.) SAS

28.) Prove: $\triangle JKL \cong \triangle MKL$



Statements

- 1.) * $\overline{KJ} \parallel \overline{LM}$
* $\underline{\overline{JL} \parallel \overline{KM}}$
* $\angle J \cong \angle M$
* $\underline{ML=4 \quad KJ=4}$
* $JL=9, KM=9$
- 2.) $\underline{\overline{KJ} \cong \overline{LM}}$
- 3.) $\underline{\overline{JL} \cong \overline{KM}}$
- 4.) $\angle KLJ \cong \angle LKM$
- 5.) $\underline{\angle MLK \cong \angle JKL}$
- 6.) $\underline{\overline{KL} \cong \overline{KL}}$
- 7.) $\triangle JKL \cong \triangle MKL$

Reasons

- 1.) Given
- 2.) Defⁿ of \cong
- 3.) Definition of \cong
- 4.) Alt Interior \angle 's
- 5.) Alternate Interior Angle
- 6.) Reflexive Prop
- 7.) ASA