

Honors Math 2 Unit 2 Review
Congruent Triangles

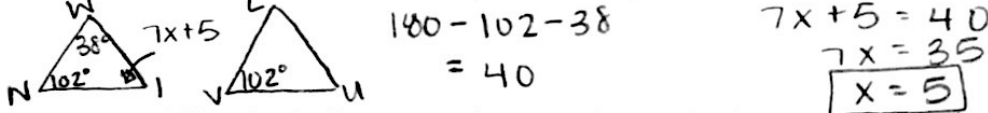
Name Key

1. If $\triangle IGH \cong \triangle KLJ$, then $\angle H \cong \underline{\angle J}$.

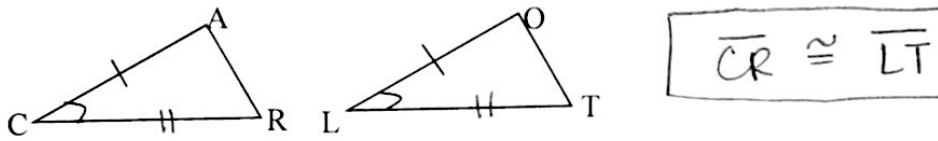
2. Given $\triangle MON \cong \triangle PQR$ with $MO = 20$, $MN = 32$, and $PR = 3x - 10$. Find the value of x .



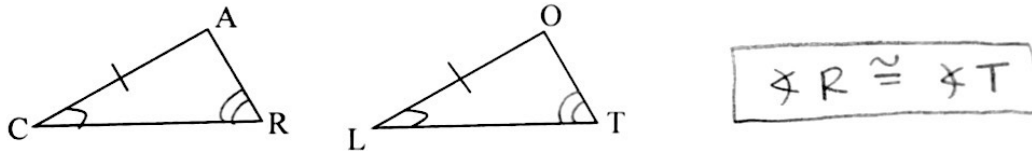
3. Given $\triangle WIN \cong \triangle LUV$ with $m\angle W = 38^\circ$, $m\angle V = 102^\circ$, and $m\angle I = 7x + 5$. Find the value of x .



4. Name one additional pair of corresponding parts that need to be congruent in order to prove that $\triangle CAR \cong \triangle LOT$ by SAS.



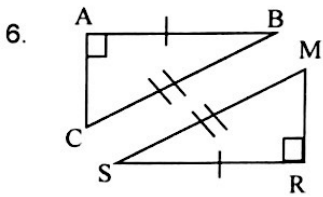
5. Name one additional pair of corresponding parts that need to be congruent in order to prove that $\triangle CAR \cong \triangle LOT$ by AAS.



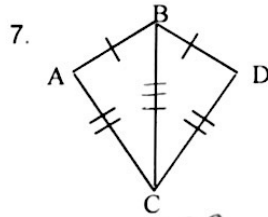
For 6-14, a) Tell whether the triangles are congruent by SSS, SAS, ASA, AAS, HL, or none.

Remember to FIRST mark vertical angles congruent, alternate interior angles congruent (look for Z's), and segments congruent by reflexive property.

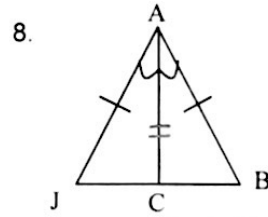
b) If the triangles are congruent, name the triangle that is congruent to $\triangle ABC$.



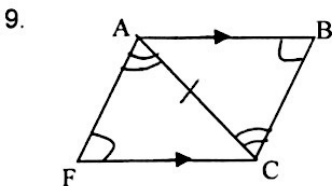
a) HL
 b) $\triangle ABC \cong \triangle \underline{RSM}$



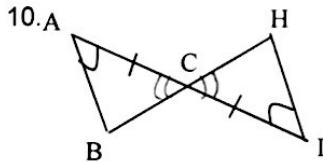
a) SSS
 b) $\triangle ABC \cong \triangle \underline{DBC}$



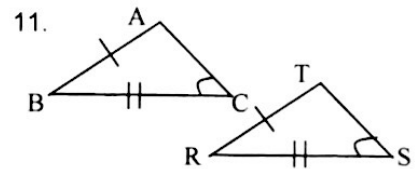
a) SAS
 b) $\triangle ABC \cong \triangle \underline{AJC}$



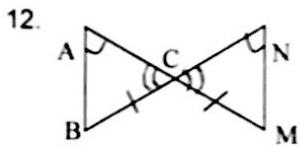
a) AAS
 b) $\triangle ABC \cong \triangle \underline{CFA}$



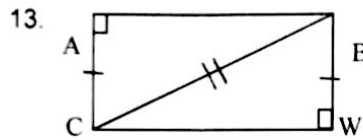
a) ASA
 b) $\triangle ABC \cong \triangle \underline{HIC}$



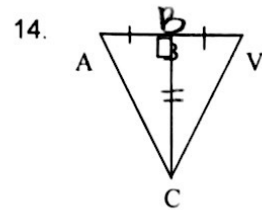
a) none
 b) $\triangle ABC \cong \triangle \underline{\quad}$



- a) AAS
 b) $\triangle ABC \cong \triangle NMC$



- a) HL
 b) $\triangle ABC \cong \triangle NCB$

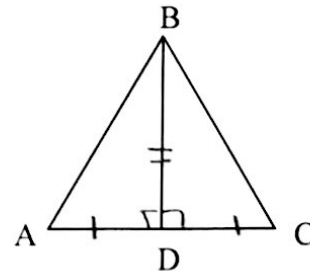


- a) SAS
 b) $\triangle ABC \cong \triangle VBC$

For the proof, fill in the missing statements and reasons.

15. Given: \overline{BD} bisects \overline{AC} at D, $\angle BDA$ and $\angle BDC$ are right angles.

Prove: $\overline{AB} \cong \overline{CB}$

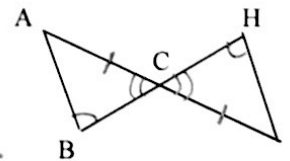


Statements	Reasons
1. \overline{BD} bisects \overline{AC} at D, $\angle BDA$ and $\angle BDC$ are right angles	1. Given
2. D is the midpt. of \overline{AC}	2. Definition of segment bisector
3. $\overline{AD} \cong \overline{DC}$	3. Def. of midpt.
4. $\angle BDA \cong \angle BDC$	4. All right angles are congruent
5. $\overline{BD} \cong \overline{BD}$	5. Reflexive property.
6. $\triangle ABD \cong \triangle CBD$	6. SAS
7. $\overline{AB} \cong \overline{CB}$	7. CPCTC

16. Write a flow or 2-column proof.

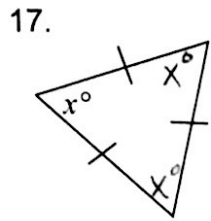
Given: $\angle B \cong \angle H$, and $\overline{AC} \cong \overline{CI}$

Prove: $\angle A \cong \angle I$



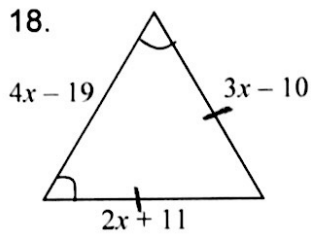
Statement	Reason
1) $\angle B \cong \angle H$, $\overline{AC} \cong \overline{CI}$	1) Given
2) $\angle ACB \cong \angle HCI$	2) Vertical \angle 's \cong
3) $\triangle ABC \cong \triangle HCI$	3) AAS
4) $\angle A \cong \angle I$	4) CPCTC

Find the value of x . Show work!



$$3x = 180$$

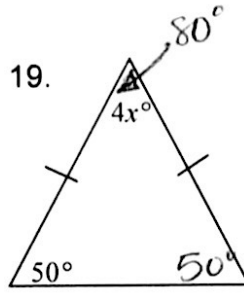
$$x = 60$$



$$2x + 11 = 3x - 10$$

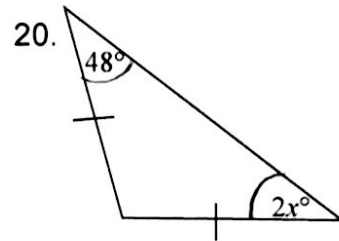
$$11 = x - 10$$

$$x = 21$$



$$4x = 80$$

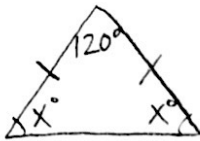
$$x = 20$$



$$2x = 48$$

$$x = 24$$

21. The measure of the vertex angle of an isosceles triangle is 120° . What is the measure of a base angle?



$$x + x + 120 = 180$$

$$2x = 60$$

$$x = 30$$

$$30^\circ$$

22. The measure of a base angle of an isosceles triangle is 56° . What is the measure of the vertex angle?

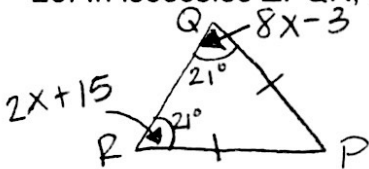


$$x + 56 + 56 = 180$$

$$x = 68$$

$$68^\circ$$

23. In isosceles $\triangle PQR$, $\angle P$ is the vertex angle. If $m\angle Q = 8x - 3$ and $m\angle R = 2x + 15$. Find $m\angle P$.



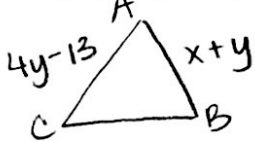
$$8x - 3 = 2x + 15$$

$$6x = 18$$

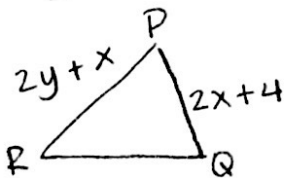
$$x = 3$$

$$m\angle P = 180 - 21 - 21 = 138^\circ$$

24. Given $\triangle ABC \cong \triangle PQR$, $AB = x + y$, $PQ = 2x + 4$, $AC = 4y - 13$, $PR = 2y + x$. Find PQ .



$$x + y = 2x + 4 \rightarrow y = x + 4$$



$$4y - 13 = 2y + x$$

$$4(x + 4) - 13 = 2(x + 4) + x$$

$$4x + 16 - 13 = 2x + 8 + x$$

$$4x + 3 = 3x + 8$$

$$x = 5$$

$$PQ = 2x + 4$$

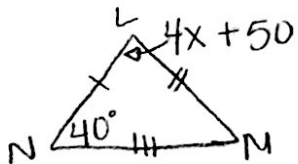
$$= 2(5) + 4$$

$$= 10 + 4$$

$$= 14$$

$$PQ = 14$$

25. Given $\triangle LMN \cong \triangle XYZ$, $m\angle L = 4x + 50$, $m\angle N = 40$, $m\angle Y = -2x + 10$. Find $m\angle X$.



$$4x + 50 - 2x + 10 + 40 = 180$$

$$2x + 100 = 180$$

$$2x = 80$$

$$x = 40$$

$$m\angle X = x + 50$$

$$= 40 + 50$$

$$= 90$$

$$m\angle X = 90^\circ$$

