

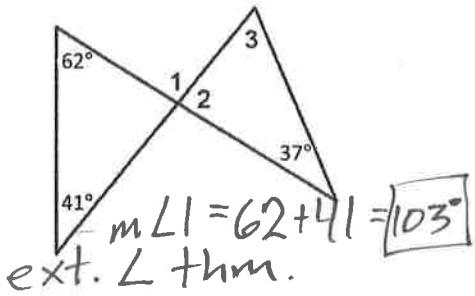
# \* SOLUTIONS

## CHAPTER 4 REVIEW

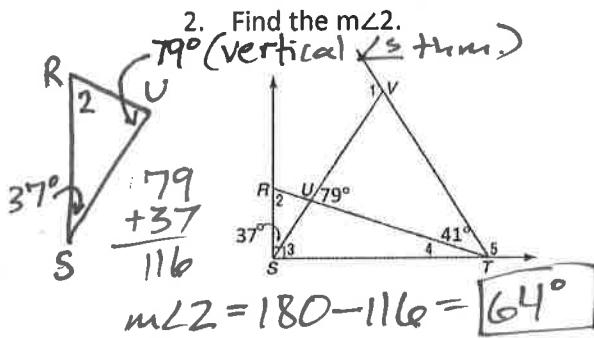
name \_\_\_\_\_ hr \_\_\_\_\_

### GEOMETRY - S

1. Find the  $m\angle 1$



2. Find the  $m\angle 2$ .

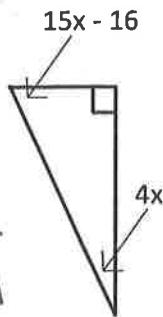


3. Find the value of  $x$

$$\begin{aligned} x + x + 61 + x - 79 &= 180 \\ 3x - 18 &= 180 \\ +18 &+18 \\ 3x &= 198 \\ \frac{3x}{3} &= \frac{198}{3} \\ x &= 66 \\ x - 79 &= 66 - 79 = -13 \leftarrow \text{no solution; } L \text{ can't be negative} \end{aligned}$$

4. Find the value of  $x$ .

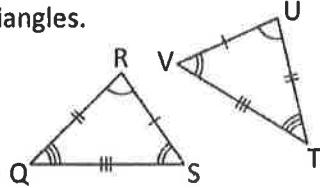
$$\begin{aligned} 15x - 16 + 4x &= 90 \\ 19x - 16 &= 90 \\ +16 &+16 \\ 19x &= 106 \\ \frac{19x}{19} &= \frac{106}{19} \\ x &= 5.6 \end{aligned}$$



5. Find the value of  $x$ .  
exterior L thm.

$$\begin{array}{r} 82 + 6x = 9x - 33 \\ -6x \quad -6x \\ \hline 82 = 3x - 33 \\ +33 \quad +33 \\ \hline 115 = 3x \\ \frac{115}{3} = \frac{3x}{3} \\ 38.3 = x = 38.3 \\ \text{but } 6(38.3) = 229.8 \\ \neq \Delta \text{ can't have a } 229.8^\circ L, \\ \text{so no solution} \end{array}$$

6. Write a congruence statement for the triangles.



$$\triangle SQR \cong \underline{\triangle VTU}$$

7. Find  $x$ .

$$\begin{array}{r} \triangle XYZ: \angle X = 5x, \angle Y = 71^\circ, \angle Z = 57^\circ \\ \triangle LMN: \angle L = 71^\circ, \angle M = 57^\circ, \angle N = 52^\circ \\ \angle N \cong \angle X \\ 52 = 5x \\ \frac{52}{5} = \frac{5x}{5} \\ 10.4 = x \end{array}$$

8. Given that  $\triangle XYZ \cong \triangle RST$ , find the values of  $a$  and  $b$ .

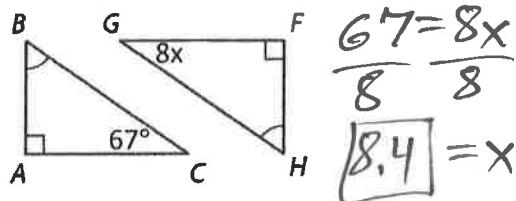
use order of letters

$$\begin{array}{r} \triangle XYZ: \angle X = 54^\circ, \angle Y = 62^\circ, \angle Z = (9b - 18)^\circ \\ \triangle RST: \angle R = 62^\circ, \angle S = 70^\circ, \angle T = (10a - 17)^\circ \\ \angle Z \cong \angle T, \text{ so...} \\ 54 + 70 + 62 \neq 180 \\ \text{oops... I made a mistake} \\ 9b - 18 = 70 \\ 9b = 88 \\ b = 9.8 \end{array}$$

3rd  $\angle$  thru:

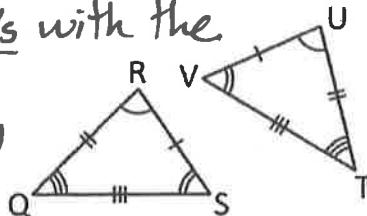
Since  $\angle B \cong \angle A$  are  $\cong$   
to  $\angle H \cong \angle F$ ,  
then  $\angle C \cong \angle G$

9. Find x.



10. Name the corresponding congruent angles for the congruent triangles.

match  $\angle$ s with the same marking



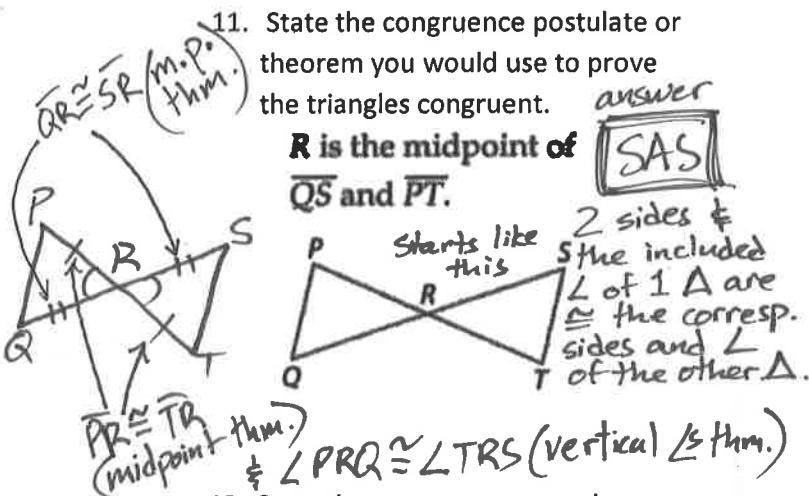
$$\begin{aligned}\angle R &\cong \angle U \\ \angle S &\cong \angle V \\ \angle Q &\cong \angle T\end{aligned}$$

11. State the congruence postulate or theorem you would use to prove the triangles congruent.

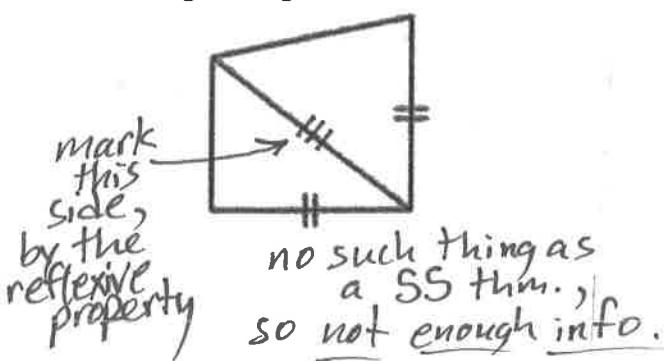
R is the midpoint of

$\overline{QS}$  and  $\overline{PT}$ .

answer  
**SAS**



12. State the congruence postulate or theorem you would use to prove the triangles congruent.



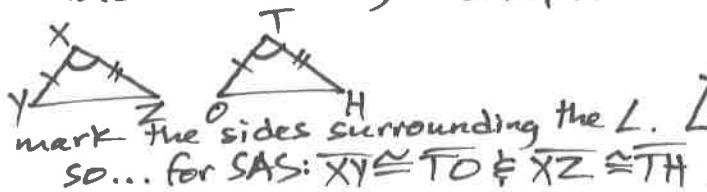
(solutions)

# CHAPTER 4 REVIEW

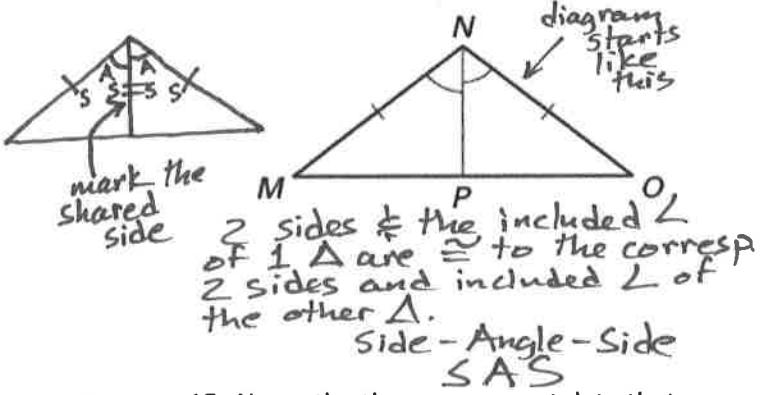
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## GEOMETRY – S (part 2)

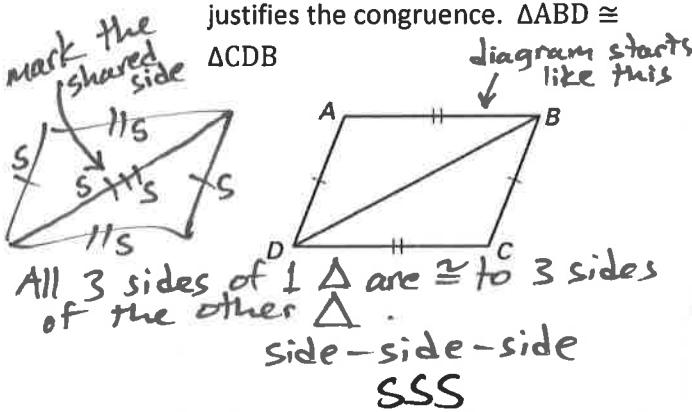
13. Given  $\angle X \cong \angle T$ , what sides must you know to be congruent to prove  $\triangle YXC \cong \triangle THO$  by SAS? *make a diagram, and mark the given  $\angle X \not\cong T$ .*



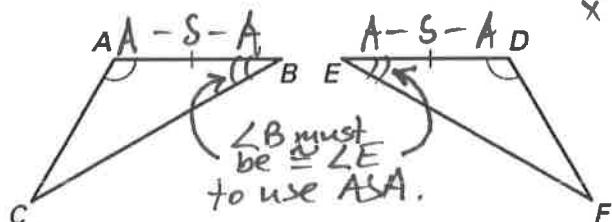
14. Which postulate can be used to prove the triangles congruent? (Without using the isosceles triangle theorem.)



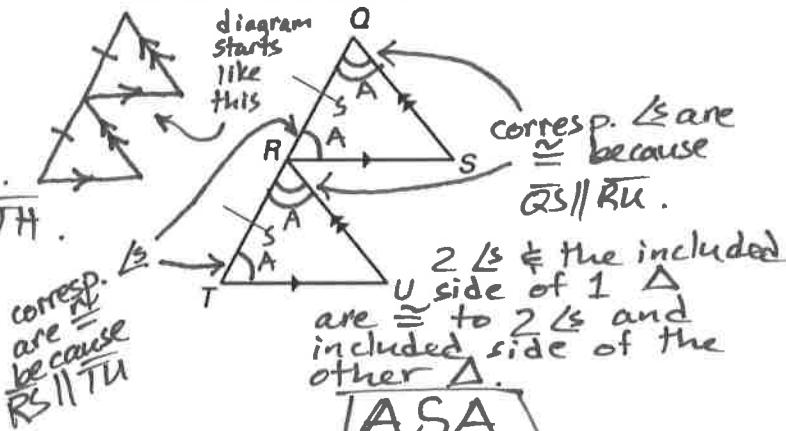
15. Name the theorem or postulate that justifies the congruence.  $\triangle ABD \cong \triangle CDB$



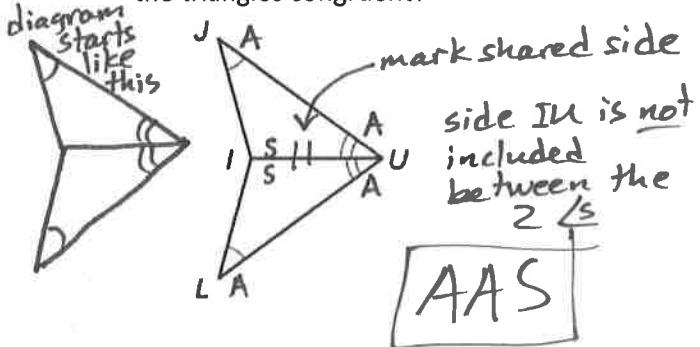
16. What congruence statement is needed to use ASA to prove  $\triangle ABC \cong \triangle DEF$ ?



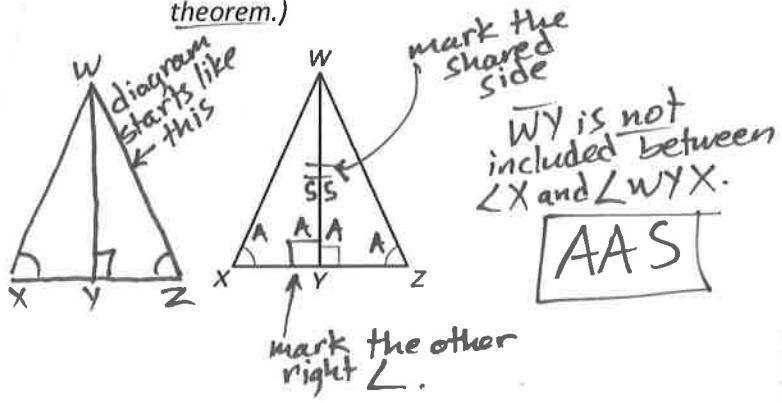
17. Which postulate can be used to prove the triangles congruent? (Without using the third angles theorem.)



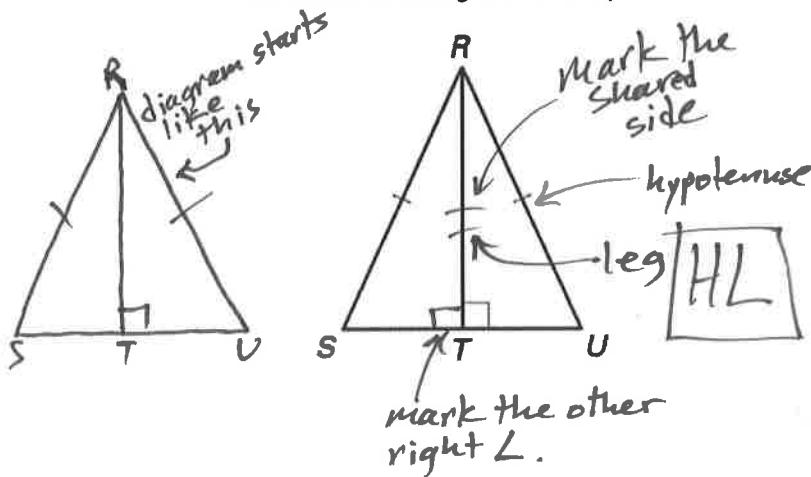
18. Which postulate can be used to prove the triangles congruent?



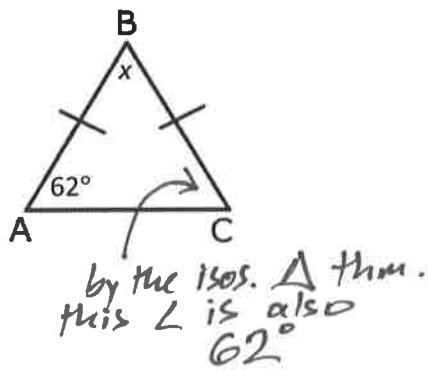
19. Which postulate can be used to prove the triangles congruent? (Without using the converse of the isosceles triangle theorem.)



20. Which postulate can be used to prove the triangles congruent? (Without using the isosceles triangle theorem.)



21. What is the value of x?



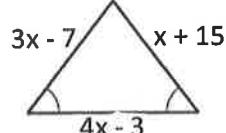
therefore we have...

$$\begin{aligned} x + 62 + 62 &= 180 \\ x + 124 &= 180 \\ -124 &\quad -124 \\ x &= 56^\circ \end{aligned}$$

22. What is the value of x?

since there are 2  $\cong$  L's, then the sides opposite from them are  $\cong$ .

$$\begin{aligned} 3x - 7 &= x + 15 \\ -x &\quad -x \\ 2x - 7 &= 15 \\ +7 &\quad +7 \\ 2x &= 22 \\ \frac{2x}{2} &= \frac{22}{2} \\ x &= 11 \end{aligned}$$



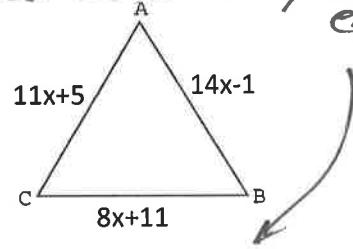
23. If  $\triangle XYZ$  is isosceles, then find the value of x.

$$\begin{aligned} x + x + 32 &= 180 \\ 2x + 32 &= 180 \\ -32 &\quad -32 \\ 2x &= 148 \\ \frac{2x}{2} &= \frac{148}{2} \\ x &= 74 \end{aligned}$$

this equals x, by the isosceles Δ thm.

24.  $\triangle ABC$  is equilateral. Find x.

all sides are  $\cong$ , so it doesn't matter what 2 sides you set equal.



$$\begin{aligned} 11x + 5 &= 14x - 1 \\ -11x &\quad -11x \\ 5 &= 3x - 1 \\ +1 &\quad +1 \\ \frac{6}{3} &= \frac{3x}{3} \\ 2 &= x \end{aligned}$$

25. Find the values of the variables.

subtract from 180 & divide by 2.

$$\begin{aligned} 180 &- 90 \\ 90 &\div 2 = 45 \end{aligned}$$

$$(11x)^\circ = 45 \quad (5y + 17)^\circ = 45$$

$$\begin{aligned} 11x &= 45 \\ \frac{11x}{11} &= \frac{45}{11} \\ x &= 4.1 \end{aligned}$$

$$\begin{aligned} 5y + 17 &= 45 \\ -17 &\quad -17 \\ 5y &= 28 \\ \frac{5y}{5} &= \frac{28}{5} \\ y &= 5.6 \end{aligned}$$