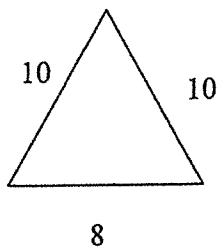


Name: Key

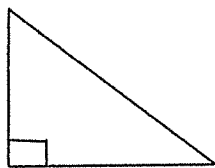
## Triangles Review

1- Classify the below triangle.



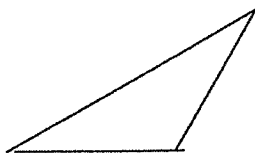
- a. Equilateral
- b. Isosceles
- c. Scalene
- d. Right triangle

2. Classify the below triangle.



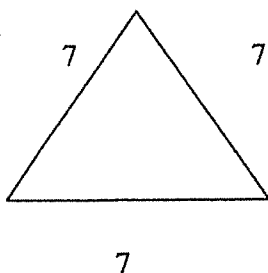
- a. Equilateral
- b. Isosceles
- c. Scalene
- d. Right triangle

3. Classify the below triangle.



- a. Acute
- b. Obtuse
- c. Right
- d. Isosceles

4. Classify the below triangle.



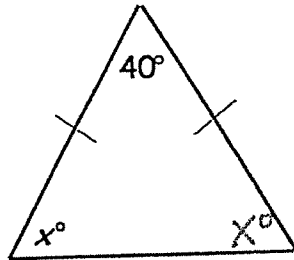
- a. Obtuse
- b. Right
- c. Isosceles
- e. Equilateral

5. Which of the terms below can be used to describe a triangle with two 45° interior angles?

- A) Acute                      B) Right                      C) Scalene  
 D) Obtuse                      E) Equilateral              *isocetes*

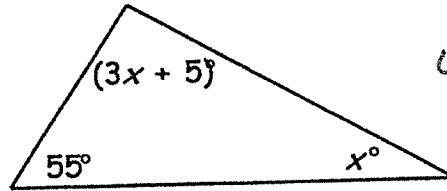
6. What is the sum of interior angles of a triangle? 180°

7. Find the value of  $x$ .



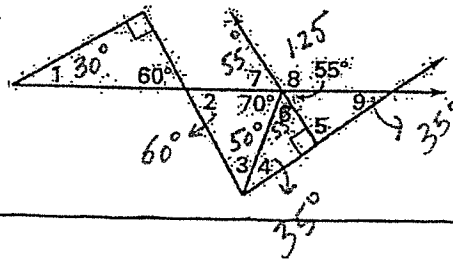
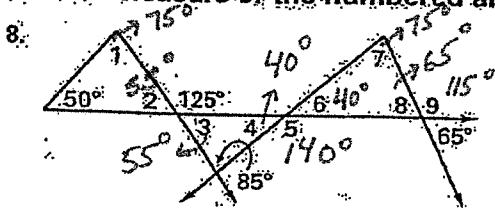
$$\begin{aligned}
 2x + 40 &= 180 \\
 -40 &-40 \\
 \hline
 2x &= 140 \\
 \frac{2x}{2} &= \frac{140}{2} \\
 \boxed{x = 70^\circ}
 \end{aligned}$$

8. Find the value of  $x$ .



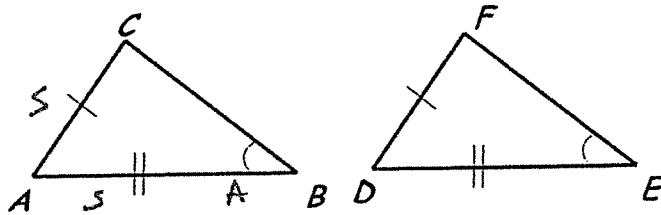
$$\begin{aligned}
 3x + 5 + x + 55 &= 180 \\
 4x + 60 &= 180 \\
 \frac{4x}{4} &= \frac{120}{4} \\
 \boxed{x = 30}
 \end{aligned}$$

Find the measure of the numbered angle:



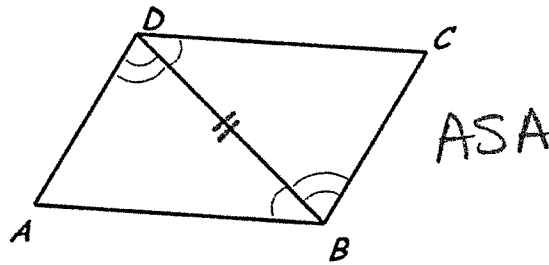
10. Name 5 ways of proving triangles congruent: SSS, SAS, AAS, ASA, HL

11. Which, if any, congruence postulate would prove the triangles are congruent?



Write a congruence statement if possible:  
Not Congruent.

12. Which, if any, congruence theorem or postulate would prove the triangles are congruent?



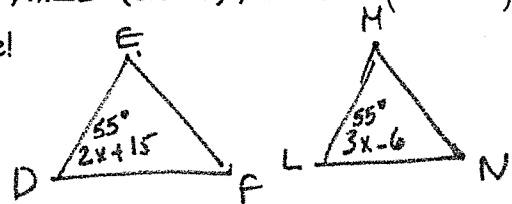
Write a congruence statement if possible:  
 $\triangle ADB \cong \triangle CBD$  ASA

13. Given that  $\triangle DEF \cong \triangle LMN$ ,  $m\angle D = (2x + 15)^\circ$ ,  $m\angle L = (3x - 6)^\circ$ , and  $DF = (4x - 68)$ , find  $LN$ . HINT - Draw & label the picture!

$$\begin{array}{r} 2x + 15 = 3x - 6 \\ -2x \quad -2x \\ \hline 15 = x - 6 \\ +6 \quad +6 \\ \hline \end{array}$$

$$x = 21$$

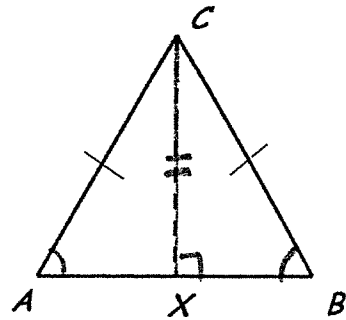
$$\begin{aligned} \angle D &= 2(21) + 15 \\ &= 55^\circ \end{aligned}$$



14. Given:  $\triangle ABC$  is isosceles /  $\angle CXB = 90^\circ$   
 Prove:  $\triangle AXC \cong \triangle BXC$

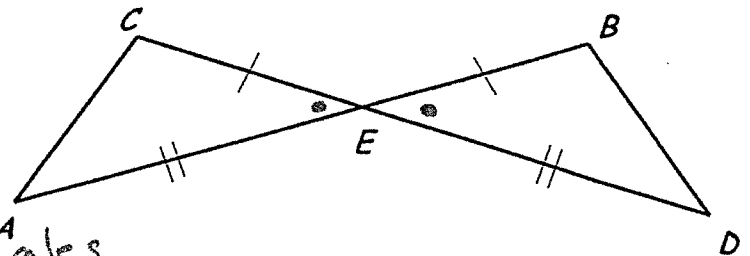
$\angle CXB \cong \angle CXA$  right angle  
 $\angle A \cong \angle B$  isosceles triangle  
 $CX \cong CX$  shared sides

$\triangle AXC \cong \triangle BXC$  by **AAS**

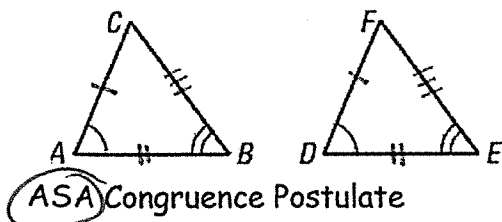


15. Given:  $\overline{CE} \cong \overline{BE}$  and  $\overline{AE} \cong \overline{DE}$   
 Prove:  $\triangle AEC \cong \triangle DEB$

$CE \cong BE$   
 $AE \cong DE$   
 $\angle CEA \cong \angle BED$  Vertical angles  
 $\triangle ECA \cong \triangle EBD$  by **SAS**



17. State the third congruence that must be given to prove that  $\triangle ABC \cong \triangle DEF$  using the indicated postulate or theorem.



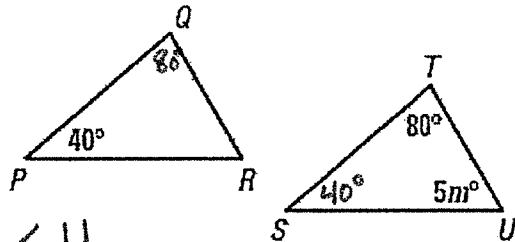
**$AB \cong DE$**

or  $AC \cong DF$   
 or  $EF \cong BC$

**ASA** Congruence Postulate

Write a congruence statement for the triangles above:  $\triangle ABC \cong \triangle DEF$

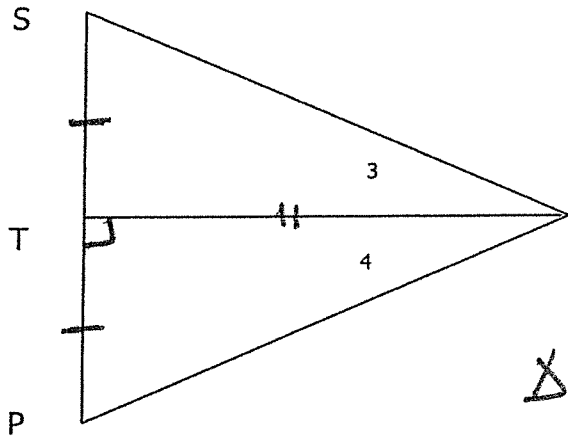
18. Given  $\angle P \cong \angle S$  and  $\angle Q \cong \angle T$ , find the value of  $m$ .



$\angle R \cong \angle U$   
 $\angle R = 60^\circ$   
 $\angle U = 60^\circ$

$$\frac{5m}{5} = \frac{60}{5} \quad m = 12$$

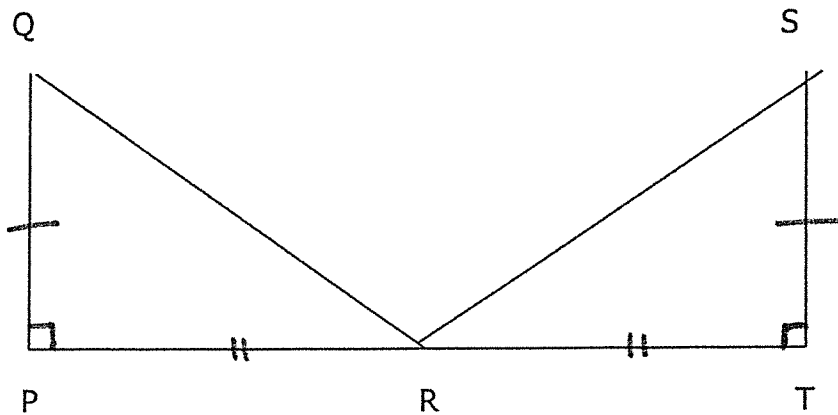
19. Given:  $TR \perp SP$ ,  $ST \cong TP$ ; prove that two triangles are congruent



$\checkmark \angle RTP \cong \angle RTS$   
 right angle  
 $\checkmark ST \cong TP$   
 $\checkmark TR \cong TR$  shared side  
 $\Delta RTP \cong \Delta RTS$  by **SAS**

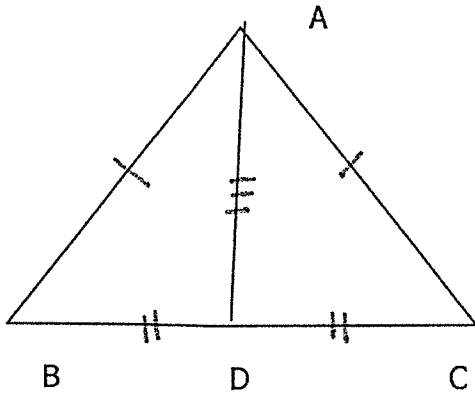
20. Given:  $QP$  is congruent to  $ST$   
 angle  $P$  and angle  $T$  are right angles  
 $R$  is the midpoint of  $PT$

Prove that the two triangles are congruent:



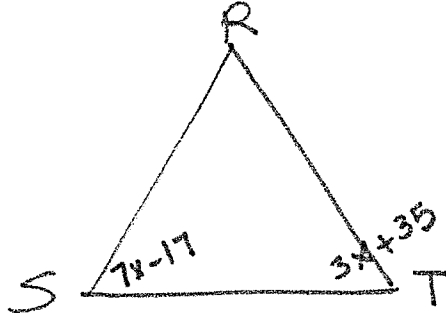
$PQ \cong TS$   
 $PR \cong TR$  midpoint  
 $\angle P \cong \angle T$  right angle  
 $\Delta QPR \cong \Delta STR$   
 by **SAS**

21. Given:  $AB$  is congruent to  $AC$   
 $D$  is the midpoint of  $BC$   
 Prove:  $\triangle ABD \cong \triangle ACD$



$AB \cong AC$   
 $BD \cong CD$  midpoint  
 $AD \cong AD$  shared side  
 $\triangle ABD \cong \triangle ACD$  by SSS

22. In isosceles triangle  $RST$ , angle  $R$  is the vertex angle. If  $m\angle S = 7x - 17$  and  $m\angle T = 3x + 35$ , find the measure of each angle of the triangle.



$$\begin{aligned} \angle S &= 7(13) - 17 \\ &= 91 - 17 \\ &= 74 \end{aligned} \left. \begin{array}{l} \\ \\ \end{array} \right\} \text{isosceles}$$

$\angle T = 74$

$\angle S = 180^\circ - 2(74) = 32^\circ$

$$\begin{aligned} m\angle S &\cong m\angle T \\ 7x - 17 &= 3x + 35 \\ -3x &\quad -3x \\ \hline 4x - 17 &= 35 \\ +17 &\quad +17 \\ \hline 4x &= 52 \\ \frac{4x}{4} &= \frac{52}{4} \\ x &= 13 \end{aligned}$$