Chapter 4 Test Review
Geometry

Name Key
Period

Use the given information to **classify** each triangle by its **angles** and by its **sides**.

Angles: Acute, Obtuse, Right, Equiangular Sides: Scalene, Isosceles, Equilateral

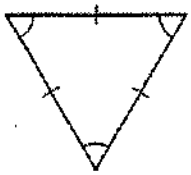
1) ΔSUP, $m\angle S = 90°$, $m\angle U = m\angle P$

Right & Isosceles

2) ΔHEY, $m\angle E = 109°$, $m\angle H = 37°$, $m\angle E = 34°$,

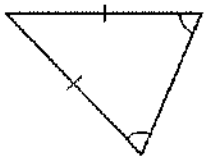
obtuse & scalene

3)



Equiangular & equilateral

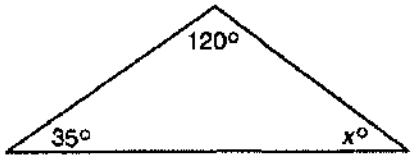
4)



Acute & isosceles

Find the value of x. SHOW ALL WORK.

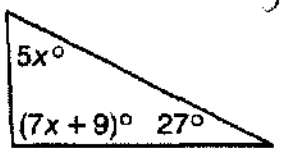
5)



$180 - 120 - 35 = x$

$25 = x$

6)



$5x + 7x + 9 + 27 = 180$

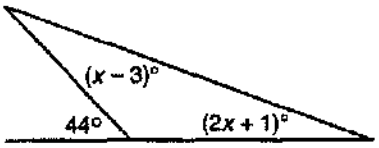
$12x + 36 = 180$

$-36 \quad -36$

$\frac{12x}{12} = \frac{144}{12}$

$x = 12$

7)



$44 = x - 3 + 2x + 1$

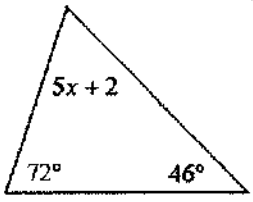
$44 = 3x - 2$

$+2 \quad +2$

$\frac{46}{3} = \frac{3x}{3}$

$15\frac{1}{3} = x$

8)



$5x + 2 + 72 + 46 = 180$

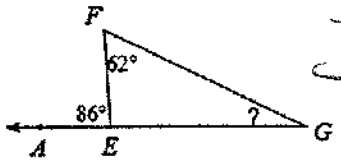
$5x + 120 = 180$

$-120 \quad -120$

$\frac{5x}{5} = \frac{60}{5}$

$x = 12$

9)

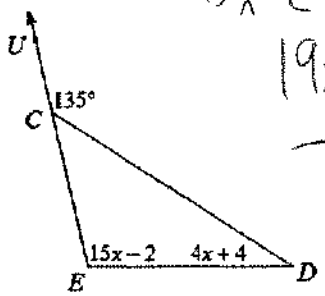


$86 = 62 + x$

$-62 \quad -62$

$24 = x$

10)



$15x - 2 + 4x + 4 = 135$

$19x + 2 = 135$

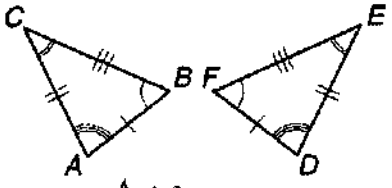
$-2 \quad -2$

$\frac{19x}{19} = \frac{133}{19}$

$x = 7$

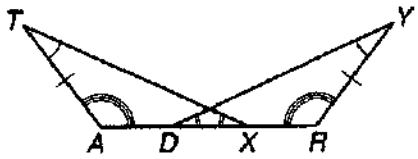
Complete the congruence statement for the congruent triangles in each diagram.

11)



Δ ACB $\cong \Delta DEF$

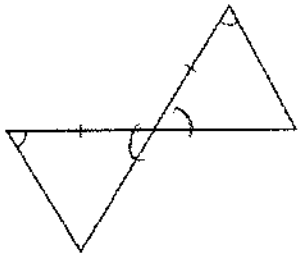
12)



$\Delta TXA \cong \Delta$ YDR

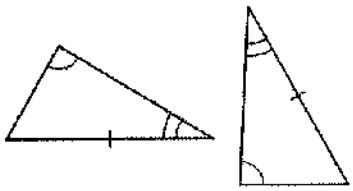
Mark any additional information required to know that the triangles are congruent then ***state*** the postulate (SSS, SAS, ASA, AAS)

13)



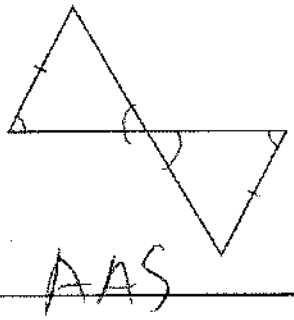
ASA

14)



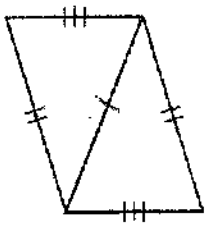
AAS

15)



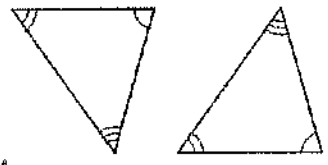
AAS

16)



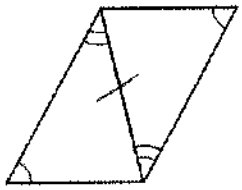
SSS

17)



AAA Doesn't Work

18)



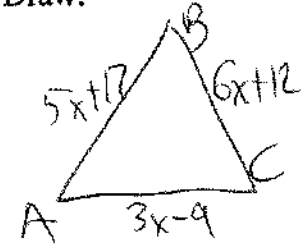
AAS

19) If an <u>equilateral</u> triangle has a perimeter of 186 inches, what is the length of each side?

$186 \div 3 = 62$

20) ΔABC has a <u>perimeter</u> of 76 centimeters with side lengths of BC= 6x+12, AC= 3x-9, and AB= 5x+17. Find the value of x.

Draw:



$6x+12+5x+17+3x-9 = 76$

$14x+20 = 76$

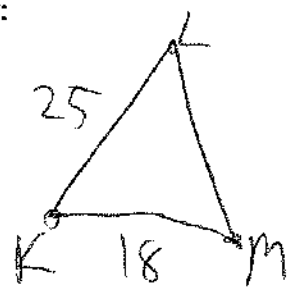
$-20 \quad -20$

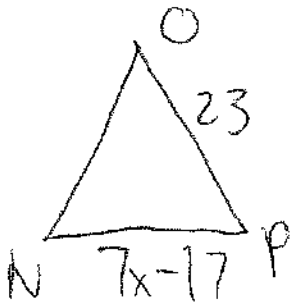
$14x = 56$

$x = 4$

21) Given $\Delta KLM \cong \Delta NOP$, $KL = 25$, $KM = 18$, $OP = 23$, and $NP = 7x - 17$. Find the value of x.

Draw:





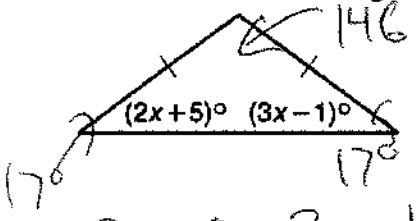
$7x-17 = 18$

$+17 \quad +17$

$7x = 35$

$x = 5$

22) Find the measure of each *angle*.



$2x+5 = 3x-1$

$-2x \quad -2x$

$5 = x-1$

$+1 \quad +1$

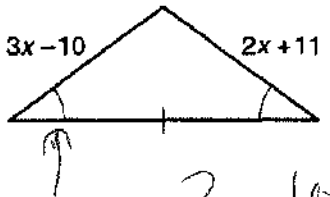
$6 = x$

$3(6)-1$

$18-1$

$17°$

23) Find the length of the two *sides* given.



$3(21)-16$

$63-16$

53

$3x-10 = 2x+11$

$-2x \quad -2x$

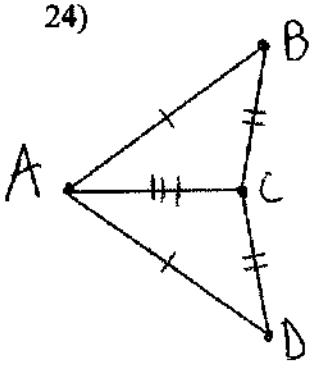
$x-10 = 11$

$+10 \quad +10$

$x = 21$

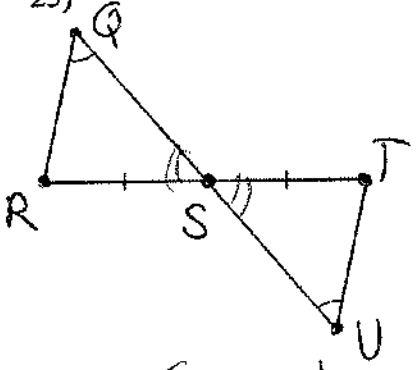
Use a 2 column proof to show the 2 triangles are congruent:

24)



STATEMENT	REASON
① $\overline{AB} \cong \overline{AD}$	① GIVEN
② $\overline{BC} \cong \overline{CD}$	② GIVEN
③ $\overline{AC} \cong \overline{AC}$	③ REFLEXIVE
④ $\triangle ABC \cong \triangle ADC$	④ SSS

25)

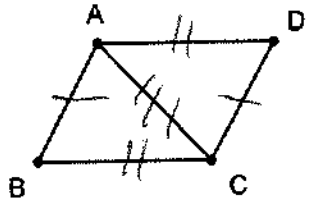


S	R
① $\angle Q \cong \angle U$	① GIVEN
② $\overline{RS} \cong \overline{ST}$	② GIVEN
③ $\angle QSR \cong \angle TSU$	③ Vertical $\angle$'s
④ $\triangle QRS \cong \triangle UTS$	④ AAS

26)

Given: $\overline{AB} \cong \overline{CD}$, $\overline{BC} \cong \overline{AD}$,

Show that the triangles are congruent.

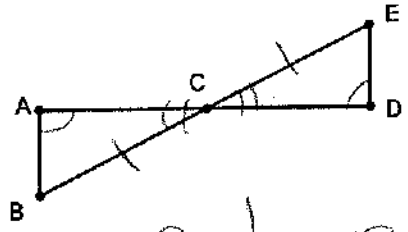


S	R
① $\overline{AB} \cong \overline{CD}$	① GIVEN
② $\overline{BC} \cong \overline{AD}$	② GIVEN
③ $\overline{AC} \cong \overline{AC}$	③ Reflexive Prop
④ $\triangle ABC \cong \triangle CDA$	④ SSS

27)

Given: C is the midpoint $\overline{BE}$, $\angle A \cong \angle D$

Show that the triangles are congruent.



S	R
① $\angle A \cong \angle D$	① GIVEN
② C is Midpt of $\overline{BE}$	② GIVEN
③ $\overline{BC} \cong \overline{CE}$	③ Def of Midpoint
④ $\angle ACB \cong \angle DCE$	④ AAS