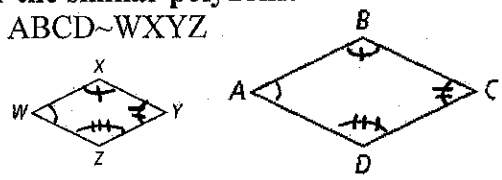
Name_____ 2-6 Date_____

A. List the pairs of congruent angles and the extended proportion that relates the corresponding sides for the similar polygons.

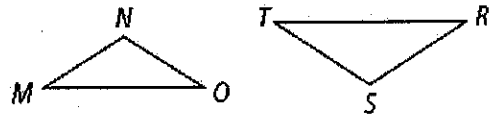
1. ABCD~WXYZ



$A \cong W$
$B \cong X$
$C \cong Y$
$D \cong Z$

$\frac{AB}{WX} = \frac{BC}{XY} = \frac{CD}{YZ} = \frac{AD}{WZ}$

2. MNO~RST

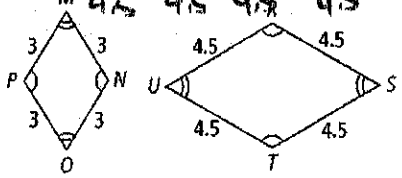


$M \cong R$
$N \cong S$
$O \cong T$

$\frac{MN}{RS} = \frac{NO}{ST} = \frac{MO}{RT}$

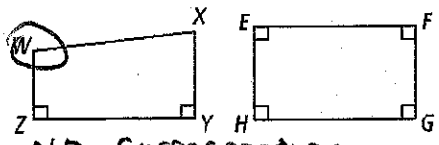
B. Determine whether the polygons are similar. If so, write a similarity statement and give the scale factor. If not, explain.

1. $\frac{3}{4.5} = \frac{3}{4.5} = \frac{3}{4.5} = \frac{3}{4.5}$



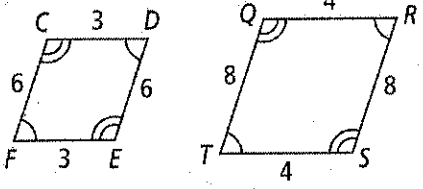
yes PMNO ~ RSTU
corresponding ∠'s ≅
corresponding side proportional

2.



NO corresponding ∠'s not ≅

3. corresponding ∠'s congruent.

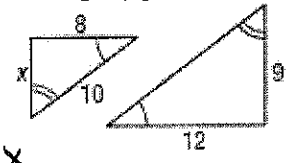


yes CDEF ~ QRST

$\frac{3}{4} = \frac{6}{8} = \frac{3}{4} = \frac{6}{8}$ sides proportional

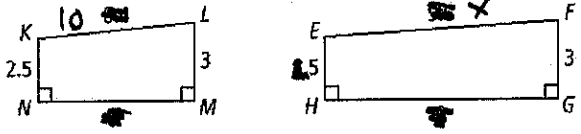
C. The polygons are similar. Find the value of x and y

1.



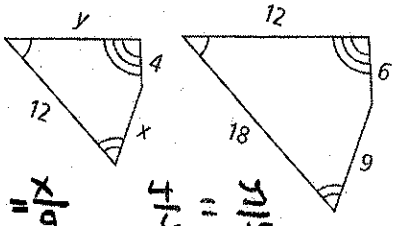
$\frac{8}{12} = \frac{x}{9}$ $x = 6$
$72 = 12x$

2.



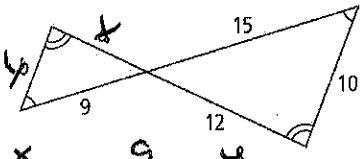
$\frac{2.5}{5} = \frac{10}{x}$ $50 = 2.5x$
$20 = x$

3.



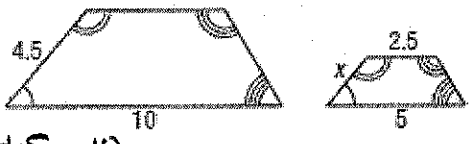
$\frac{4}{6} = \frac{x}{9}$ $\frac{4}{6} = \frac{y}{12}$
$6x = 36$ $48 = 6y$, $y = 8$
$x = 6$

4.



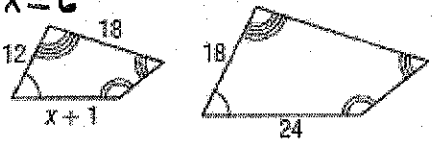
$\frac{9}{15} = \frac{x}{12}$ $\frac{9}{15} = \frac{y}{10}$
$108 = 15x$ $90 = 15y$
$x = 7.5$ $6 = y$

5.



$\frac{4.5}{x} = \frac{10}{5}$
$10x = 22.5$
$x = 2.25$

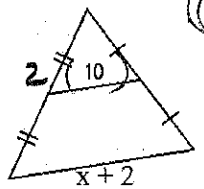
6.



$\frac{12}{18} = \frac{x+1}{24}$
$288 = 18x + 18$
$-18 \quad -18$
$270 = 18x$
$15 = x$

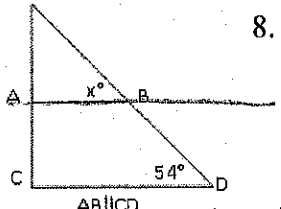
D. Find the variables.

6.



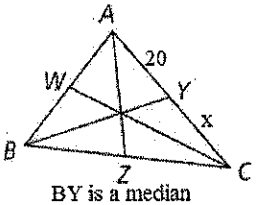
$20 = x + 2$
$x = 18$

7.



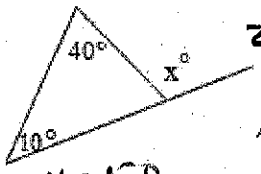
AB ∥ CD
corresponding ∠'s
$x = 54°$

8.



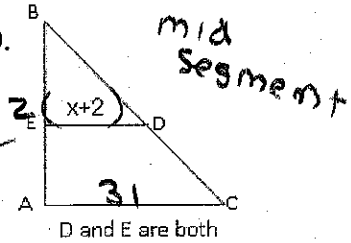
BY is a median
$x = 20$

9.



$x = 50$

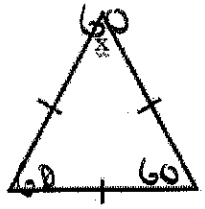
10. mid segment



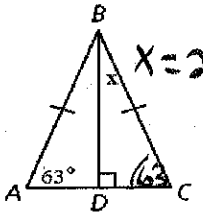
D and E are both midpoints. If AC = 31, find x

$2x + 4 = 31$
$2x = 27$

11.

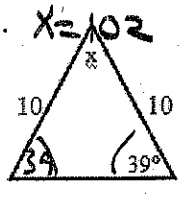


12.

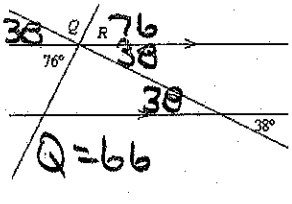


$x = 27$

13. $x = 102$

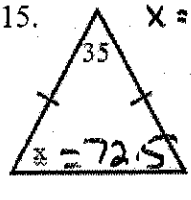


14.

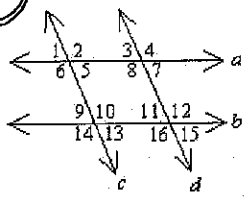


$Q = 66$

15. $x = 13.5$



E. Which of the following statements would prove lines are parallel, if so state the lines and why



1. Y N $\angle 11 \cong \angle 15$ AD

2. Y N $\angle 11 \cong \angle 7$ Alt int

3. Y N $\angle 13 \cong \angle 1$ Alt Ext

4. Y N $\angle 6 + \angle 5 = 180$ Same side int

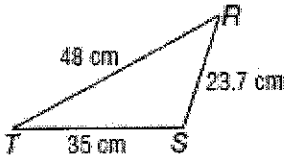
5. Y N $\angle 8 + \angle 5 = 180$ consec int

6. Y N $\angle 1 \cong \angle 9$ corresponding L's

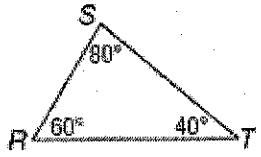
F. indicate, yes or no, whether the 3 sides or 3 angles create a triangle. Explain why or why not

1. $a = 14$, $b = 5$, $c = 12$ — yes, $5+12 > 14$
2. $\angle A = 100°$, $\angle B = 35°$, $\angle C = 45°$ — 180, yes
3. $x = 10$, $y = 25$, $z = 19$ — $10+19 > 25$, yes
4. $\angle S = 55°$, $\angle U = 40°$, $\angle N = 75°$ — 170, NO
5. $p = 20$, $d = 50$, $q = 25$ — $20+25 \not> 50$, NO
6. $\angle R = 75°$, $\angle A = 45°$, $\angle T = 60°$ — 180, yes

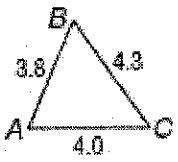
G. List the angles and sides from smallest to largest

1. 

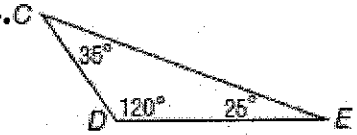
T, R, S — SR, TS, TR

2. 

SR, ST, RT — T R S

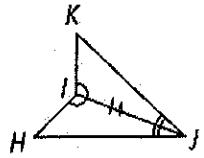
3. 

C, B, A — AB AC BC

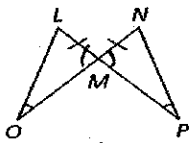
4. 

E C D — CD DE CE

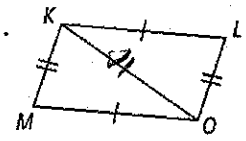
H – Determine If the two triangles are congruent. Write a congruency statement and the postulate

1. 

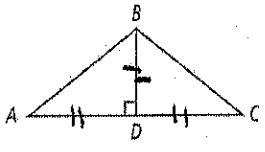
ASA — $\triangle HIJ \cong \triangle KIJ$

2. 

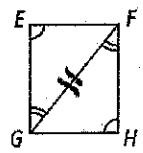
AAS — $\triangle LMN \cong \triangle NMP$

3. 

SSS — $\triangle KMO \cong \triangle OLK$

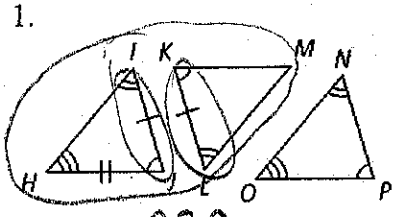
4. 

BD bisects AC
SAS — $\triangle ABD \cong \triangle CBD$

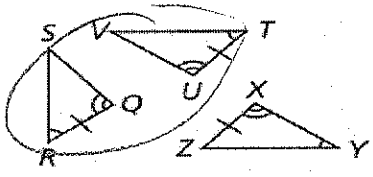
5. 

AAS — $\triangle EFG \cong \triangle HGF$

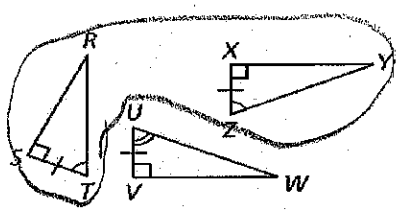
I. Which two triangles in each grouping are congruent. Write the postulate the proves it.

1. 

ASA

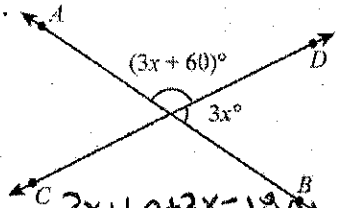
2. 

ASA

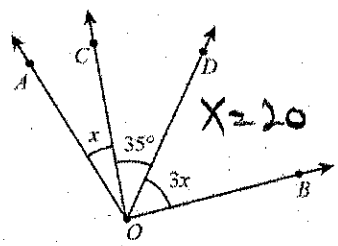
3. 

ASA

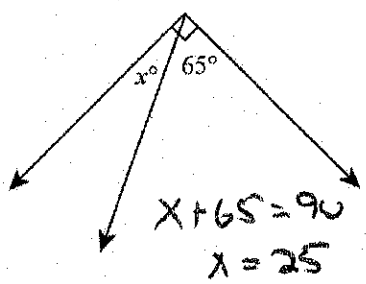
J. Find the value of x

1. 

$3x+60+3x=180$
$6x+60=180$
$x = 20$

2. 

$x = 20$
$\angle AOB = 115°$
$x+35+3x = 115$
$4x+35 = 115$

3. 

$x+65 = 90$
$x = 25$