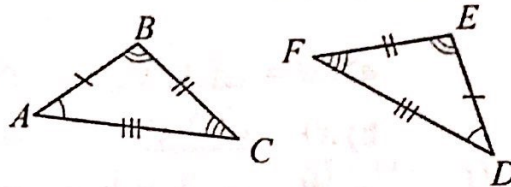


### Congruent Polygons

Polygons with the same shape and size.  
 This means all corresponding parts  
 (sides and angles) are congruent.

### Congruency Statements

When polygons are congruent, we can write a congruency statement.



$$\triangle ABC \cong \triangle DEF$$

1 2 3      1 2 3

A valid congruency statement must match all corresponding angles and sides.

### CPCTC

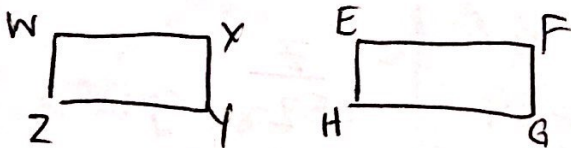
What is that??

Corresponding parts of congruent triangles are congruent

If we know two triangles are congruent, then we know that every pair of corresponding parts is also congruent.

**Directions:** List all congruent angles and sides given the congruency statements.

1.  $\square WXYZ \cong \square EFGH$   
 1 2 3 4    1 2 3 4

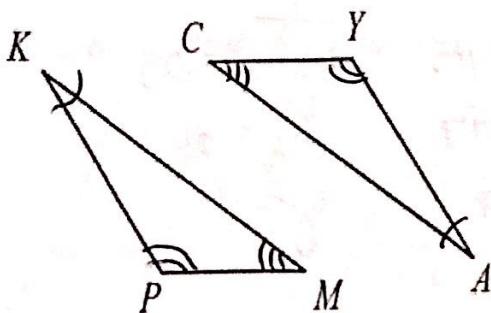


Write another valid congruency statement:

$\square ZYXW \cong \square HGFE$

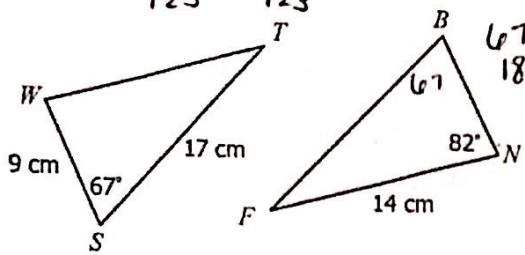
Angles	Sides
$\angle W \cong \angle E$	$\overline{WX} \cong \overline{EF}$
$\angle X \cong \angle F$	$\overline{XY} \cong \overline{FG}$
$\angle Y \cong \angle G$	$\overline{YZ} \cong \overline{GH}$
$\angle Z \cong \angle H$	$\overline{WZ} \cong \overline{EH}$

2. Given  $\triangle KPM \cong \triangle AYC$ , complete each of the following statements.  
 1 2 3    1 2 3



- f)  $\overline{KM} \cong \overline{AC}$
- g)  $\overline{CY} \cong \overline{MP}$
- h)  $\overline{PK} \cong \overline{YA}$
- c)  $\angle Y \cong \angle P$
- d)  $\angle K \cong \angle A$
- e)  $\angle ACY \cong \angle KMP$
- a)  $\triangle MPK \cong \triangle CYA$
- b)  $\triangle YAC \cong \triangle PKM$

3. Given  $\triangle STW \cong \triangle BFN$ , find each missing measure.

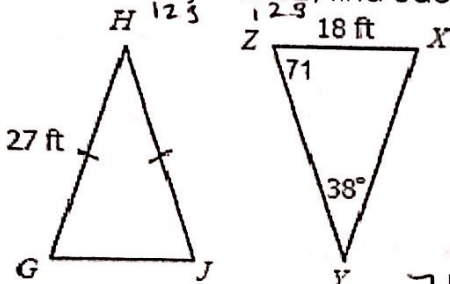


$67 + 82 = 149$   
 $180 - 149 = 31$

- a)  $BN = \underline{9 \text{ cm}}$
- b)  $TW = \underline{14 \text{ cm}}$
- c)  $BF = \underline{17 \text{ cm}}$

- d)  $m\angle W = \underline{82^\circ}$
- e)  $m\angle B = \underline{67^\circ}$
- f)  $m\angle F = \underline{31^\circ}$

4. Given  $\triangle GHJ \cong \triangle XYZ$ , find each missing measure.

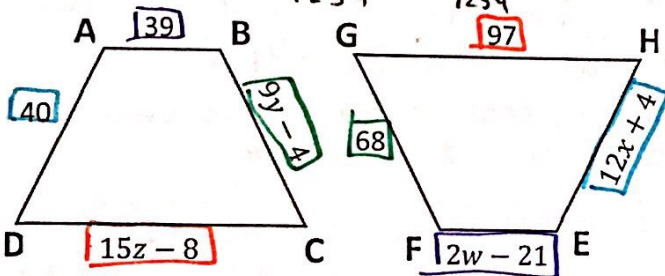


$71 + 38 = 109$      $180 - 109 = 71$

- a)  $GJ = \underline{18 \text{ ft}}$
- b)  $XY = \underline{27 \text{ ft}}$
- c)  $ZY = \underline{27 \text{ ft}}$

- d)  $m\angle H = \underline{38^\circ}$
- e)  $m\angle Z = \underline{71^\circ}$
- f)  $m\angle J = \underline{71^\circ}$

5. Given Trapezoids ABCD and EFGH are congruent ( $ABCD \cong EFGH$ ), find the values of  $w, x, y$  and  $z$ .



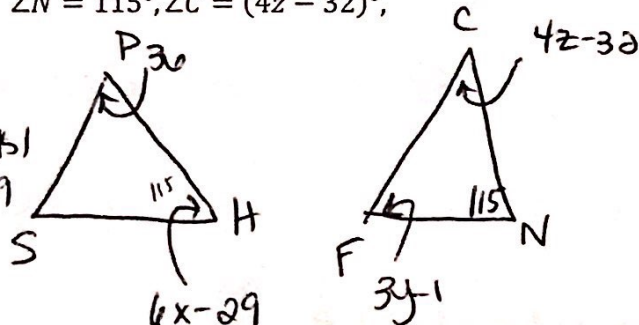
X  
 $12x + 4 = 40$   
 $12x = 36$   
 $x = 3$

Y  
 $9y - 4 = 68$   
 $9y = 72$   
 $y = 8$

W  
 $2w - 21 = 39$   
 $2w = 60$   
 $w = 30$

Z  
 $15z - 8 = 97$   
 $15z = 105$   
 $z = 7$

6. Given  $\triangle PHS \cong \triangle CNF$ . Find the values of  $x, y$ , and  $z$ , if  $\angle H = (6x - 29)^\circ$ ,  $\angle P = 36^\circ$ ,  $\angle F = (3y - 1)^\circ$ ,  $\angle N = 115^\circ$ ,  $\angle C = (4z - 32)^\circ$ .



$115 + 36 = 151$   
 $180 - 151 = 29$

X  
 $6x - 29 = 115$   
 $6x = 144$   
 $x = 24$

Y  
 $3y - 1 = 29$   
 $3y = 30$   
 $y = 10$

Z  
 $4z - 32 = 36$   
 $4z = 68$   
 $z = 17$