

Notes – Congruent Polygons	Name: <u>Key</u>
Standard:	Hour:

Objective: I can determine if two polygons are congruent by identifying all of their congruent parts. I can use the congruent parts of congruent polygons to solve for a variable and find measures.

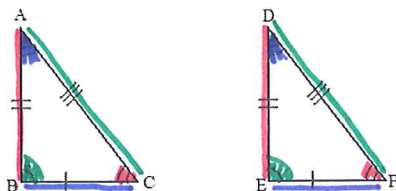
Definition

For two or more polygons to be considered *congruent*, ALL of their corresponding parts must be congruent.
 When writing congruence statements, order matters!

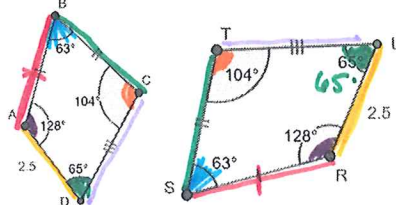
Examples

Write all of the segment and angle congruence statements for each pair of polygons. Then write the congruence statement for each polygon.

1a.



1b.



Segments	Angles
$AB \cong DE$ given	$\angle C \cong \angle F$ given
$BC \cong EF$ given	$\angle A \cong \angle D$ given
$AC \cong DF$ given	$\angle B \cong \angle E$ given

Segments	Angles
$AD \cong RU$	$\angle B \cong \angle S$
$AB \cong RS$	$\angle D \cong \angle U$
$BC \cong ST$	$\angle A \cong \angle R$
$DC \cong UT$	$\angle C \cong \angle T$

Congruence Statement:

$\triangle ABC \cong \triangle DEF$
 (remember order matters!)

Congruence Statement:

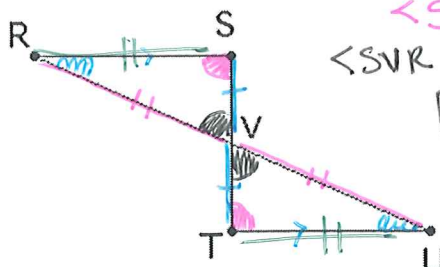
quadrilateral $ABCD \cong$ quadrilateral $RSTU$

2. List all reasons for this proof.

Given:

$RS \parallel UT$, V is the midpoint of ST and RU, and $RS \cong UT$

Prove: $\triangle RST \cong \triangle UTV$



Angles w/ Justifications

- $\angle R \cong \angle U$ alt. int. \angle s are \cong
- $\angle S \cong \angle T$ alt. int. \angle s are \cong
- $\angle SVR \cong \angle TVU$ vertical \angle s are \cong

Sides w/ Justifications

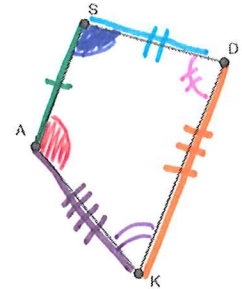
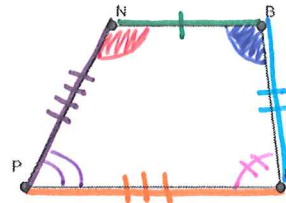
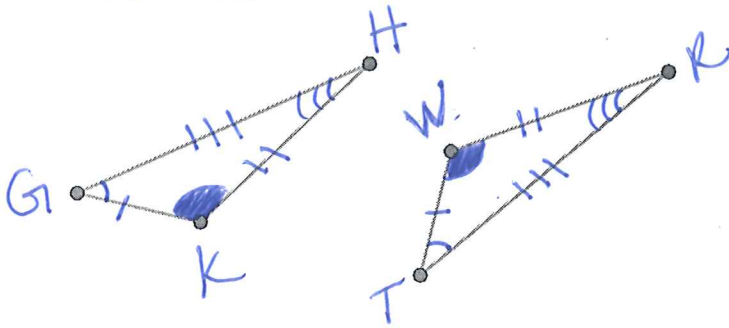
- $SV \cong TV$ def of midpoint
- $RV \cong UV$ def of midpoint
- $RS \cong UT$ given

therefore $\triangle RST \cong \triangle UTV$

Use the congruence statement given to mark the polygons congruent.

1. $\triangle GHK \cong \triangle TRW$

2. $NBRP \cong ASDK$



Use the given congruence statement to complete each blank.

3. $HJKLP \cong QWRTY$

4. $\triangle GHE \cong \triangle KLP$

$\angle W \cong \angle J$

$\angle H \cong \angle Q$

$\angle E \cong \angle P$

$\angle K \cong \angle G$

$\overline{TY} \cong \overline{LP}$

$\overline{PH} \cong \overline{TQ}$

$\overline{GH} \cong \overline{KL}$

$\overline{PK} \cong \overline{EG}$

$KLPHJ \cong RTYQW$

$\triangle LKP \cong \triangle HGE$

ORDER matters and must write in capital letters!

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Recall - Definition

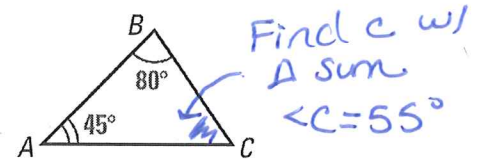
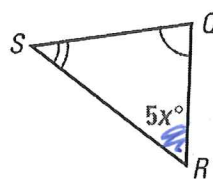
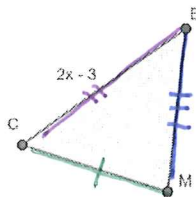
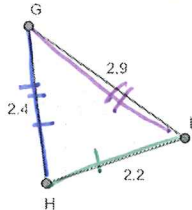
Congruence means to be equal in measure.

Practice

Find the indicated value using the information given.

5. $\triangle GIH \cong \triangle BCM$

6. $\triangle QRS \cong \triangle BCA$



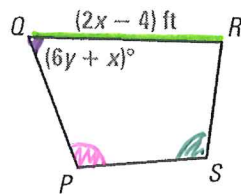
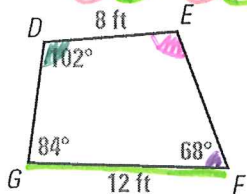
$BC = 2.9$ $x = 2.95$

$x = 11$

$BC \cong GI$
 $2x - 3 = 2.9$

7. $DEFG \cong SPQR$

$QR \cong FG$
 $2x - 4 = 12$
 $2x = 16$
 $x = 8$



$x = 8$ $y = 10$ $\angle S = 102^\circ$ $SP = 8ft$

$\angle S \cong \angle D$
 $SP \cong DE$
 $SP = 8ft$

$\angle Q \cong \angle F$
 $6y + x = 68$
 $6y + 8 = 68$
 $6y = 60$
 $y = 10$