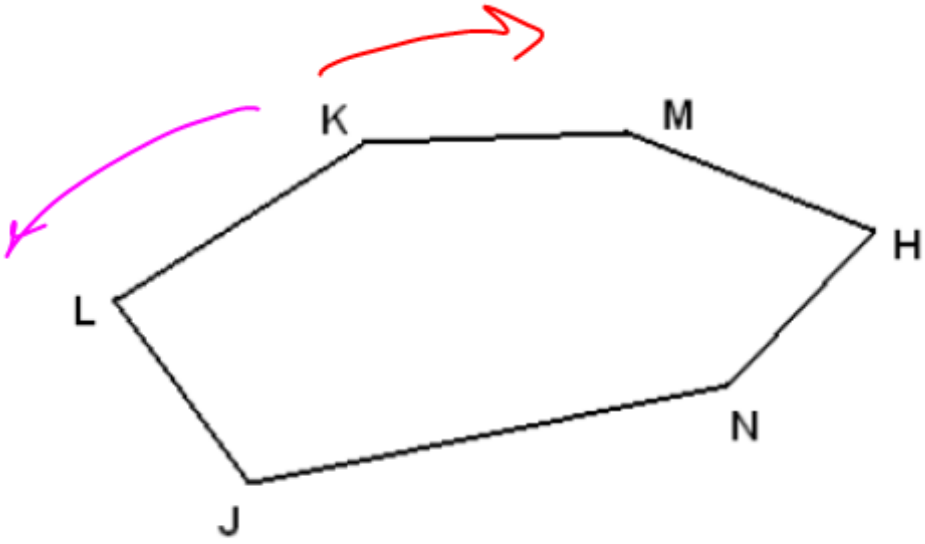
Polygon: A connected set of at least three coplanar line segments such that each segment intersects only two others, one at each endpoint.

Congruent: (From earlier in the course) Two figures are congruent if they have the "same size and shape".



Name the polygon on the right in as many valid ways as possible.

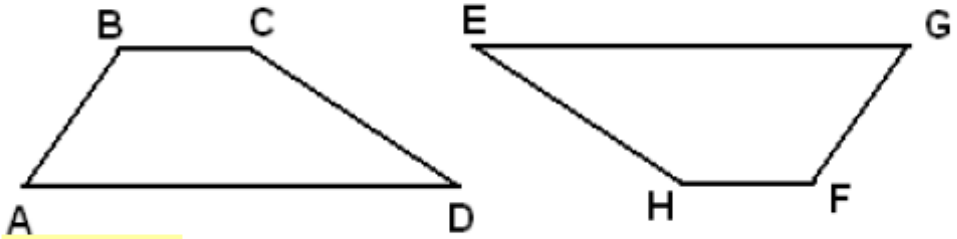
KMHNJL
MHNJLK
HNJLKM
NJLKMH
JLKMHN
LKMHNJ

KLJNHM
LJNHMK
JNHMKL
NHMKLJ
HMKLJN
MKLJNH

Correspondence:

A way of pairing points in 2 polygons.

The figures on the right are congruent.



ABCD $\cong$ GFHE

Polygon Congruence Postulate [PCP]

Two polygons are congruent if and only if there is a correspondence between them such that

size (1) All corresponding sides are $\cong$.

shape (2) All corresponding angles are $\cong$.

[EX1] If quadrilateral ABCD is congruent to quadrilateral WFMJ, what do we automatically know?

$\overline{AB} \cong \overline{WF}$

$\overline{BC} \cong \overline{FM}$

$\overline{CD} \cong \overline{MJ}$

$\overline{AD} \cong \overline{WJ}$

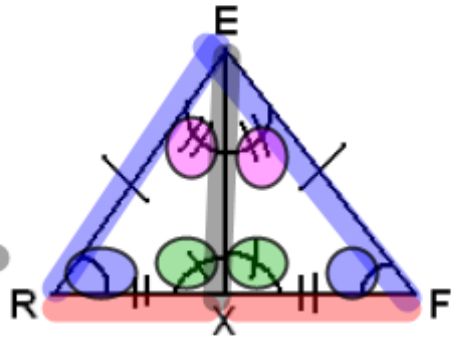
$\angle A \cong \angle W$

$\angle B \cong \angle F$

$\angle C \cong \angle M$

$\angle D \cong \angle J$

[EX2] In the figure, prove that ΔREX is congruent to ΔFEX

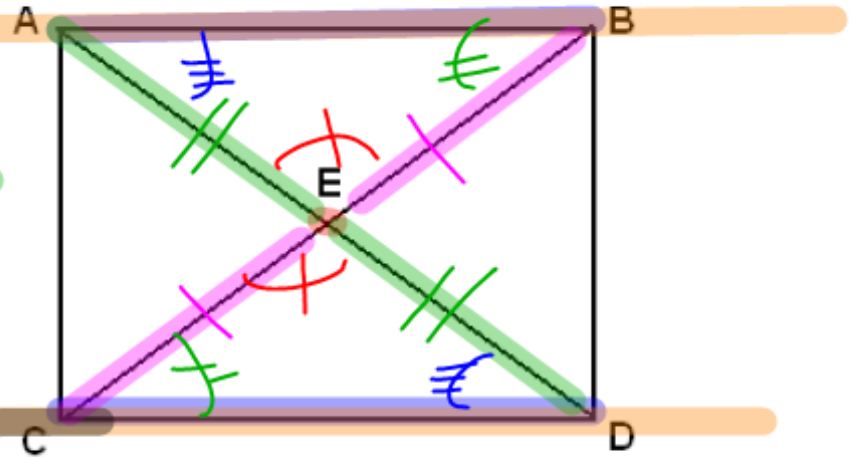


S	R
1 S $\overline{RE} \cong \overline{FE}$	1 Given
S $\overline{RX} \cong \overline{FX}$	
A $\angle R \cong \angle F$	
A $\angle REX \cong \angle FEX$	
A $\angle RXE \cong \angle FXE$	
2 S $\overline{EX} \cong \overline{EX}$	2 Reflexive
3 $\Delta REX \cong \Delta FEX$	3 PCP

[EX3] Given: $\overline{AB} \cong \overline{CD}$, $\overline{AB} \parallel \overline{CD}$

E is the midpoint of $\overline{BC}$ and $\overline{AD}$

Prove: $\triangle AEB \cong \triangle DEC$



S	R
1 S	1 Given
2 S $\overline{BE} \cong \overline{EC}$ S $\overline{AE} \cong \overline{ED}$	2 Def of Midpoint
3 A $\angle AEB \cong \angle DEC$	3 VAT
4 A $\angle ABE \cong \angle ECD$ A $\angle BAE \cong \angle EDC$	4 CAIAT
5 $\triangle AEB \cong \triangle DEC$	5 PCP