

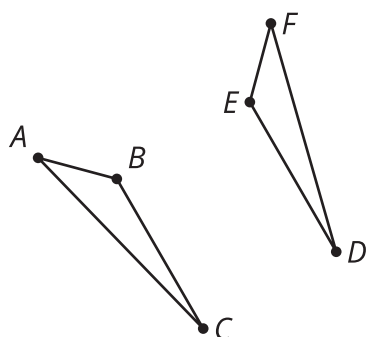


# Congruent Parts, Part 2

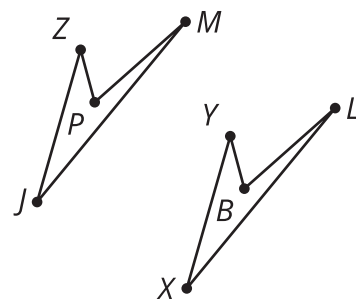
Let's name figures in ways that help us see the corresponding parts.

## 2.1 Math Talk: Which Are Congruent?

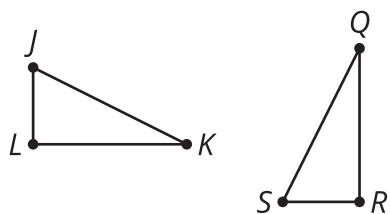
Each pair of figures is congruent. Decide whether each congruence statement is true or false.



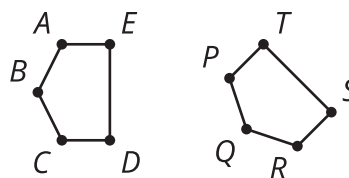
Triangle  $ABC$  is congruent to triangle  $FED$ .



Quadrilateral  $PZJM$  is congruent to quadrilateral  $LYXB$ .



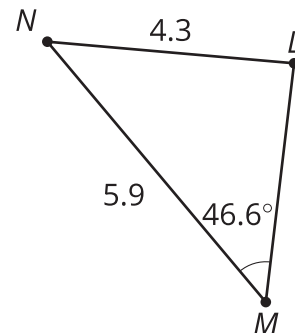
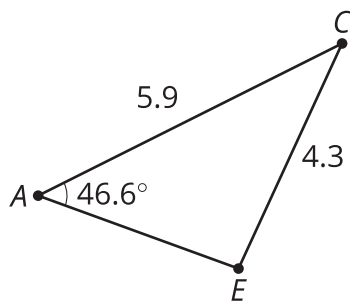
Triangle  $JKL$  is congruent to triangle  $QRS$ .



Pentagon  $ABCDE$  is congruent to pentagon  $PQRST$ .

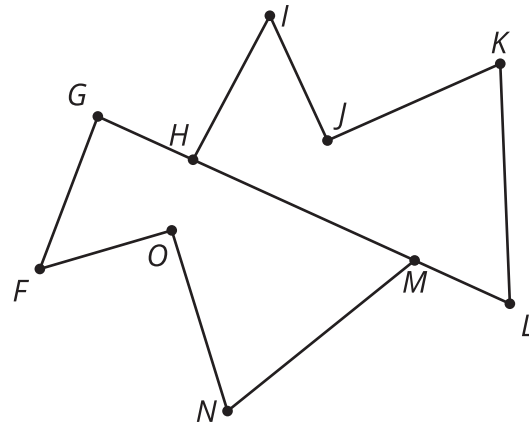
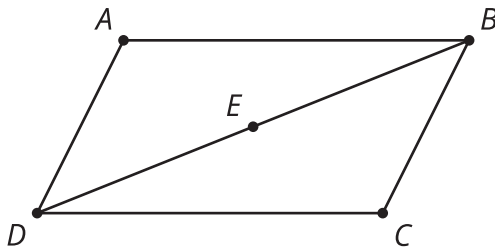
## 2.2 Which Triangles Are Congruent?

Here are 3 triangles.



1. Triangle  $PQR$  is congruent to which triangle? Explain your reasoning.
2. Show a sequence of rigid motions that takes triangle  $PQR$  to that triangle. Draw each step of the transformation.
3. Explain why there can't be a rigid motion from triangle  $PQR$  to the other triangle.

## 2.3 Are These Parts Congruent?



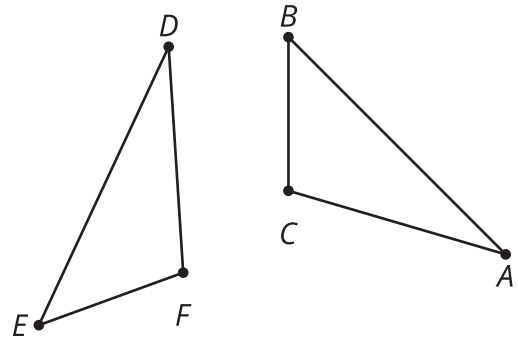
1. Triangle  $ABD$  is a rotation of triangle  $CDB$  around point  $E$  by  $180^\circ$ . Is angle  $ADB$  congruent to angle  $CDB$ ? If so, explain your reasoning. If not, which angle is  $ADB$  congruent to?
2. Polygon  $HIJKL$  is a reflection and translation of polygon  $GFONM$ . Is segment  $KJ$  congruent to segment  $NM$ ? If so, explain your reasoning. If not, which segment is  $NM$  congruent to?
3. Quadrilateral  $PQRS$  is a rotation of polygon  $VZYW$ . Is angle  $QRS$  congruent to angle  $ZYW$ ? If so, explain your reasoning. If not, which angle is  $QRS$  congruent to?

## 💡 Are you ready for more?

Suppose quadrilateral  $PQRS$  was both a rotation of quadrilateral  $VZYW$  and also a reflection of quadrilateral  $YZVW$ . What can we conclude about the shape of our quadrilaterals? Explain why.

## 👤 Lesson 2 Summary

Naming congruent figures so it's clear from the name which parts correspond makes it easier to check whether two figures are congruent and to use corresponding parts. In this image, segment  $AB$  appears to be congruent to segment  $DE$ . Also, segment  $EF$  appears to be congruent to segment  $BC$ . So, it makes more sense to conjecture that triangle  $ABC$  is congruent to triangle  $DEF$  than to conjecture triangle  $ABC$  is congruent to triangle  $FDE$ .



If we are told quadrilateral  $MATH$  is congruent to quadrilateral  $LOVE$ , without even looking at the figures we know:

- Angle  $M$  is congruent to angle  $L$ .
- Angle  $A$  is congruent to angle  $O$ .
- Angle  $T$  is congruent to angle  $V$ .
- Angle  $H$  is congruent to angle  $E$ .
- Segments  $MA$  and  $LO$  are congruent.
- Segments  $AT$  and  $OV$  are congruent.
- Segments  $TH$  and  $VE$  are congruent.
- Segments  $HM$  and  $EL$  are congruent.

Quadrilaterals  $MATH$  and  $LOVE$  can be named in many different ways so that they still correspond—such as  $ATHM$  is congruent to  $OVEL$ , or  $THMA$  is congruent to  $VELO$ . But  $ATMH$  is congruent to  $LOVE$  means there are different corresponding parts. Note that quadrilateral  $MATH$  refers to a different way of connecting the points than quadrilateral  $ATMH$ .

