Lesson 2.1:

Congruent Figures

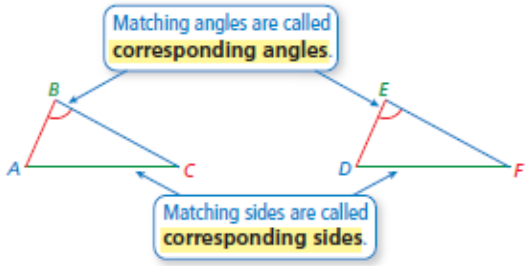
Essential Question

How can you identify congruent triangles?

Key Idea

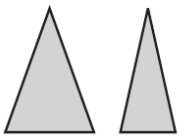
Congruent Figures

Figures that have the same size and the same shape are called **congruent figures**. The triangles below are congruent.



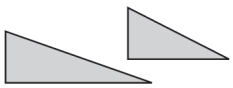
Tell whether the triangles are *congruent* or *not congruent*.

1.



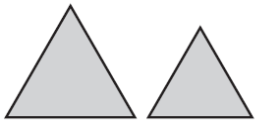
No! Different shapes

2.



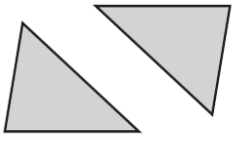
No! Different sizes

3.



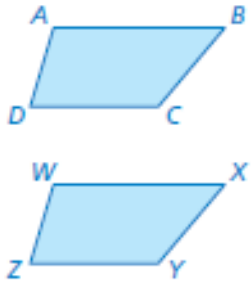
No! Different sizes

4.



Yes! Same shape & size, just different positions

The figures are congruent. Name the corresponding angles and the corresponding sides.

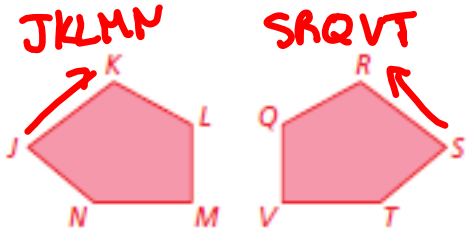


$\angle A \cong \angle W, \angle B \cong \angle X,$
$\angle C \cong \angle Y, \angle D \cong \angle Z$

$AB \cong WX, BC \cong XY,$
$CD \cong YZ, DA \cong ZW$

Order matters!
$AB \cong WX,$
$AB \ncong XW$

1. The figures are congruent. Name the corresponding angles and the corresponding sides.



$\angle J \cong \angle S, \angle K \cong \angle R$
$\angle L \cong \angle Q, \angle M \cong \angle V, \angle N \cong \angle T$

5 pairs of angles

$JK \cong SR, KL \cong RQ, LM \cong QV,$
$MN \cong VT, NJ \cong TS$

5 pairs of sides

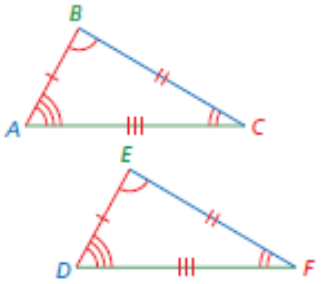
Key Idea

Identifying Congruent Figures

Two figures are congruent when corresponding angles and corresponding sides are congruent.

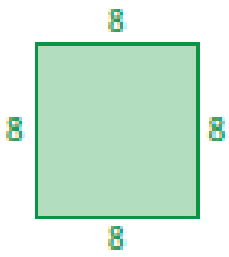
Triangle *ABC* is congruent to Triangle *DEF*.

$\triangle ABC \cong \triangle DEF$

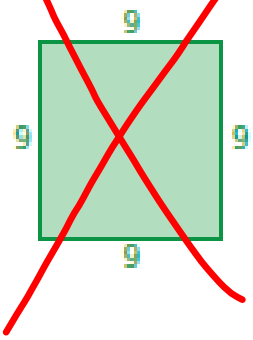


Which square is congruent to Square A?

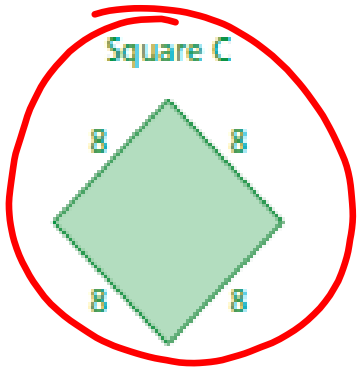
Square A



Square B



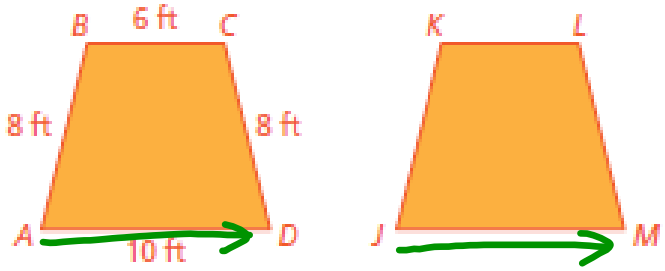
Square C



Even though Square C is in a different position, it is the same size (8×8) and shape (square).

Trapezoids *ABCD* and *JKLM* are congruent.

a. What is the length of side *JM*?



$JM \cong AD$

10 ft

b. What is the perimeter of *JKLM*?

$JKLM \cong ABCD \rightarrow$ same perimeter

$8ft + 6ft + 8ft + 10ft = \boxed{32\ ft}$