BRING TEXTBOOK VOLUME 2!!!!!

Warmup 2/(# of eggs in a baker's dozen)

Created by Mr. Lischwe

$0.95 \rightarrow \frac{95}{100} \rightarrow \frac{19}{20}$

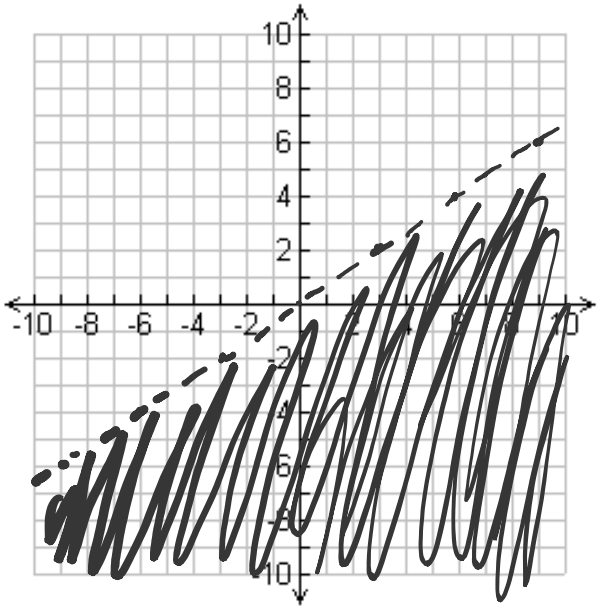
Solve: $\frac{5x + 6 - 7x}{2} = (3x - 1)^2$

$-2x + 6 = 6x - 2$

$8 = 8x$

$1 = x$

Graph the inequality. $y < \frac{2}{3}x$



If the list of fractions below continues in the same pattern, which term will be equal to 0.95?

Term	1	2	3
Fraction	1/2	2/3	3/4

A. the 100th
B. the 95th
C. the 20th
D. the 19th

Simplify the following:

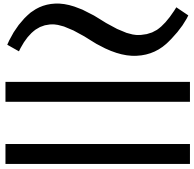
$\frac{23}{12}$

$\frac{1}{2} + \frac{2}{3} + \frac{3}{4} \rightarrow \frac{6}{12} + \frac{8}{12} + \frac{9}{12}$

TURN IN ANGLE CHALLENGE

Go over Quizzes

OBJECTIVE: WHAT DOES CONGRUENT MEAN???



Symbol for congruence!

Some other symbols to know

$\parallel$ parallel

$\perp$ perpendicular

Rigid Motions

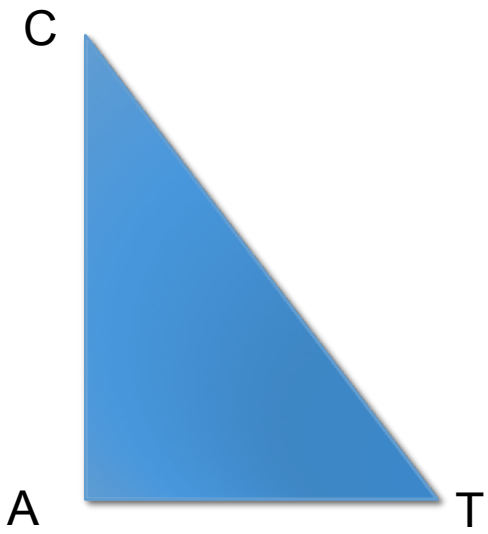
- What are Rigid Motions???
  - “Motions that preserve the size and shape of figures”
- Who can name some Rigid Motions that we know???
  - Translations
  - Rotations
  - Reflections

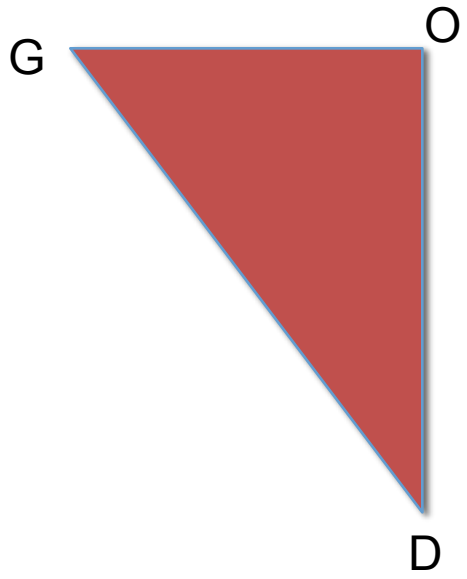
Congruent = same size, same shape

- All the angles are the same
- All the side lengths are the same

Two Congruent Triangles…

If I tell you that triangle CAT is congruent to triangle DOG… what else can you conclude? Tell me everything you know!





$\overline{AC} \cong \overline{OD}$

$\overline{AT} \cong \overline{OG}$

$\overline{CT} \cong \overline{DG}$

$\angle A \cong \angle O$

$\angle C \cong \angle D$

$\angle T \cong \angle G$

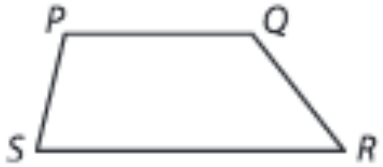
Complete Reflection Questions 1 and 2 on pg. 910

Reflect

1. If you know that $\triangle ABC \cong \triangle DEF$, what six congruence statements about segments and angles can you write? Why?

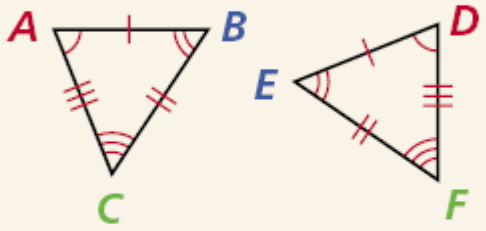
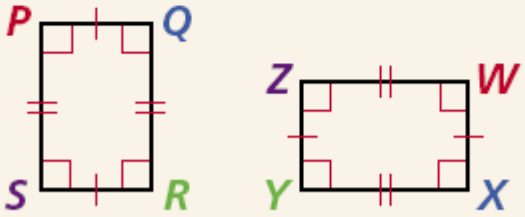
$\overline{AB} \cong \overline{DE}$, $\overline{BC} \cong \overline{EF}$, $\overline{AC} \cong \overline{DF}$, $\angle A \cong \angle D$, $\angle B \cong \angle E$, $\angle C \cong \angle F$. The rigid motions that map $\triangle ABC$ to $\triangle DEF$ also map the sides and angles of $\triangle ABC$ to the corresponding sides and angles of $\triangle DEF$, which establishes congruence.

2. Do your findings in this Explore apply to figures other than triangles? For instance, if you know that quadrilaterals *JKLM* and *PQRS* are congruent, can you make any conclusions about corresponding parts? Why or why not?



Yes; since quadrilateral *JKLM* is congruent to quadrilateral *PQRS*, there is a sequence of rigid motions that maps *JKLM* to *PQRS*. This same sequence of rigid motions maps sides and angles of *JKLM* to the corresponding sides and angles of *PQRS*.

Properties of Congruent Polygons

DIAGRAM	CORRESPONDING ANGLES	CORRESPONDING SIDES
 $\triangle ABC \cong \triangle DEF$	$\angle A \cong \angle D$ $\angle B \cong \angle E$ $\angle C \cong \angle F$	$\overline{AB} \cong \overline{DE}$ $\overline{BC} \cong \overline{EF}$ $\overline{AC} \cong \overline{DF}$
 polygon $PQRS \cong$ polygon $WXYZ$	$\angle P \cong \angle W$ $\angle Q \cong \angle X$ $\angle R \cong \angle Y$ $\angle S \cong \angle Z$	$\overline{PQ} \cong \overline{WX}$ $\overline{QR} \cong \overline{XY}$ $\overline{RS} \cong \overline{YZ}$ $\overline{PS} \cong \overline{WZ}$

Highlight! pg. 910

Corresponding Parts of Congruent Figures Are Congruent

If two figures are congruent, then corresponding sides are congruent and corresponding angles are congruent.

Helpful Hint

When you write a statement such as $\Delta ABC \cong \Delta DEF$, you are also stating which parts are congruent!!!

Let's Look at Example A on pg. 910

Example 1 $\triangle ABC \cong \triangle DEF$. **Find the given side length or angle measure.**

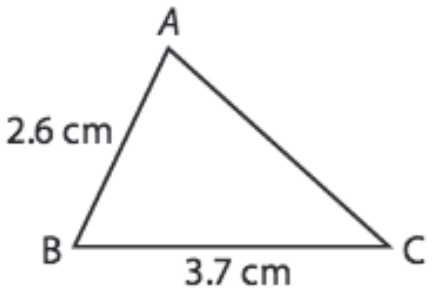
(A) DE

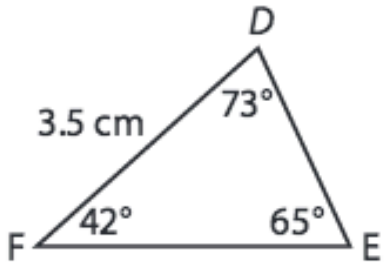
Step 1 Find the side that corresponds to $\overline{DE}$.

Since $\triangle ABC \cong \triangle DEF$, $\overline{AB} \cong \overline{DE}$.

Step 2 Find the unknown length.

$DE = AB$, and $AB = 2.6$ cm,
so $DE = 2.6$ cm.





Try Part B on pg. 910!

(B) $m\angle B$

Step 1 Find the angle that corresponds to $\angle B$.

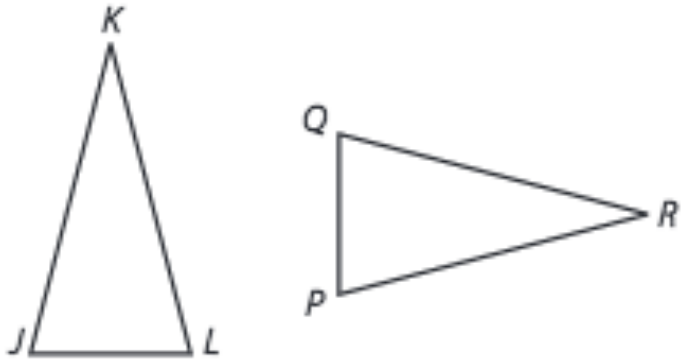
Since $\triangle ABC \cong \triangle DEF$, $\angle B \cong \angle$ **E** .

Step 2 Find the unknown angle measure.

$m\angle B = m\angle$ **E** , and $m\angle$ **E** $=$ **65** °, so $m\angle B =$ **65** °.

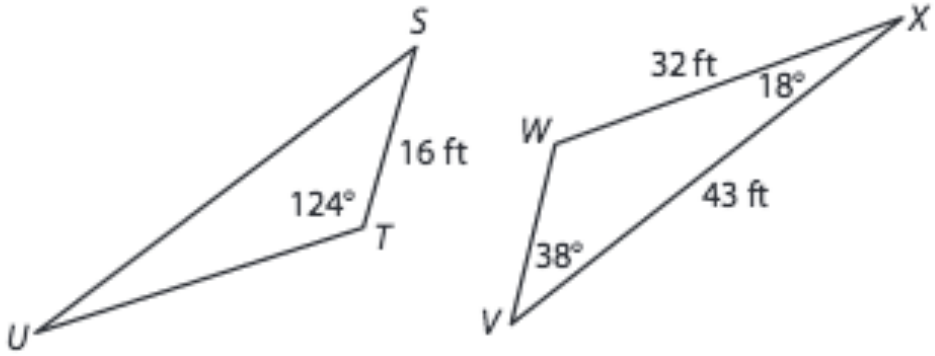
Try Questions 3 – 5 on pg. 911

3. **Discussion** The triangles shown in the figure are congruent. Can you conclude that $\overline{JK} \cong \overline{QR}$? Explain.



No; the segments appear to be congruent, but the correspondence between the triangles is not given, so you cannot assume $\overline{JK}$ and $\overline{QR}$ are corresponding parts.

$\triangle STU \cong \triangle VWX$. **Find the given side length or angle measure.**



4. SU

Since $\triangle STU \cong \triangle VWX$, $\overline{SU} \cong \overline{VX}$.

$SU = VX = 43$ ft.

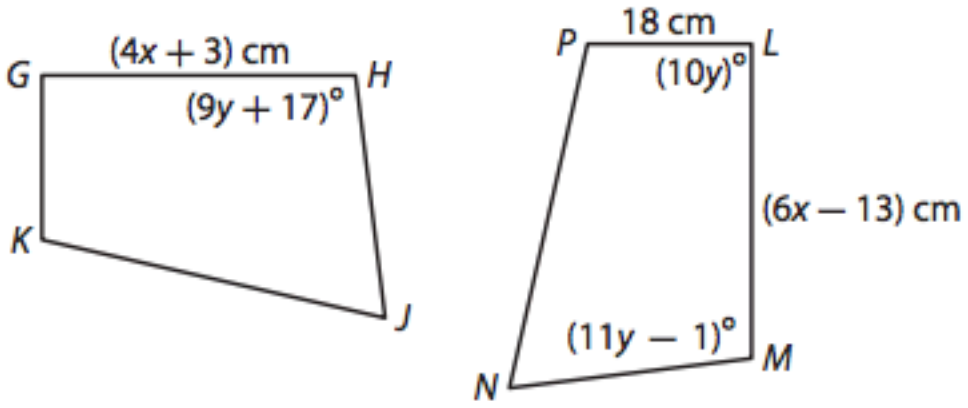
5. $m\angle S$

Since $\triangle STU \cong \triangle VWX$, $\angle S \cong \angle V$.

$m\angle S = m\angle V = 38°$.

Try Questions 6-7 on pg. 912

Quadrilateral $GHJK \cong$ quadrilateral $LMNP$. Find the given side length or angle measure.



6. LM

Since $GHJK \cong LMNP$, $\overline{GH} \cong \overline{LM}$. Therefore, $GH = LM$.

$$4x + 3 = 6x - 13 \rightarrow 8 = x$$

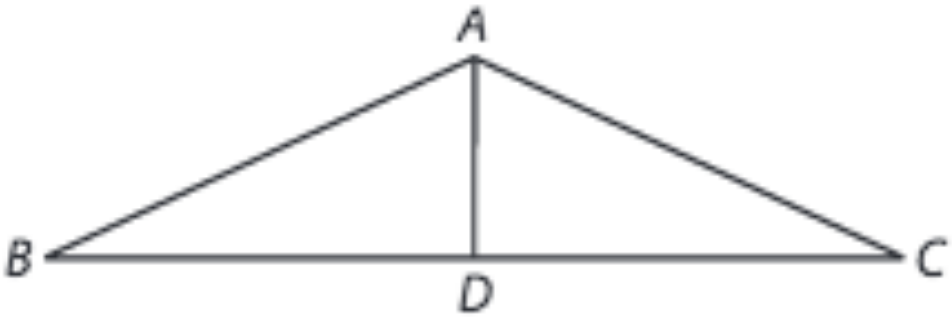
$$LM = 6x - 13 = 6(8) - 13 = 35 \text{ cm}$$

7. $m\angle H$

Since quadrilateral $GHJK \cong$ quadrilateral $LMNP$, $\angle H \cong \angle M$. Therefore, $m\angle H = m\angle M$.

$$9y + 17 = 11y - 1 \rightarrow 9 = y$$

$$m\angle H = (9y + 17)^\circ = (9 \cdot 9 + 17)^\circ = 98^\circ$$



Given: $\triangle ABD \cong \triangle ACD$

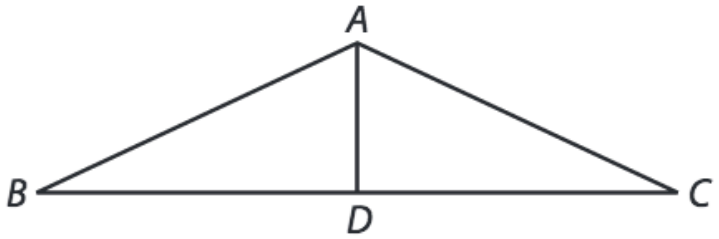
Prove: D is the midpoint of $\overline{BC}$.

What do we KNOW?

What are we trying to prove?

pg. 912

Example 3 **Write each proof.**



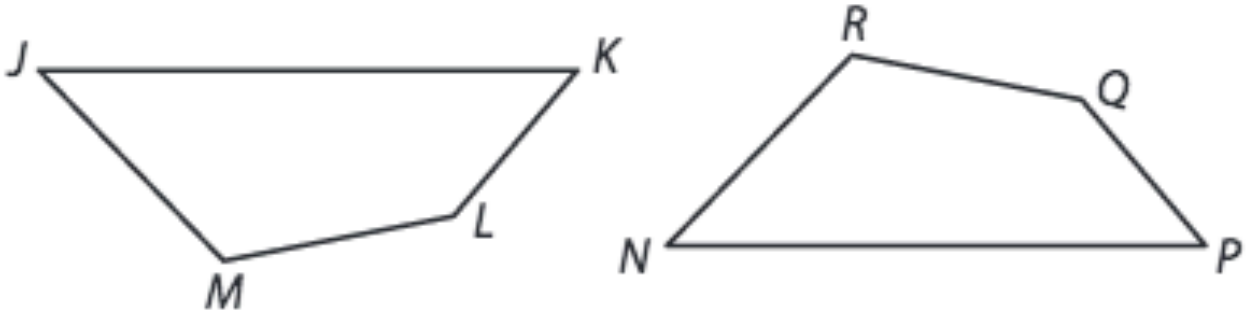
(A) Given: $\triangle ABD \cong \triangle ACD$

Prove: D is the midpoint of $\overline{BC}$.

Statements	Reasons
1. $\triangle ABD \cong \triangle ACD$	**1.** Given
2. $\overline{BD} \cong \overline{CD}$	**2.** Corresponding parts of congruent figures are congruent.
3. D is the midpoint of $\overline{BC}$.	**3.** Definition of midpoint.

Given: Quadrilateral $JKLM \cong$ quadrilateral $NPQR$; $\angle J \cong \angle K$

Prove: $\angle J \cong \angle P$



What do we KNOW?

What are we trying to prove?