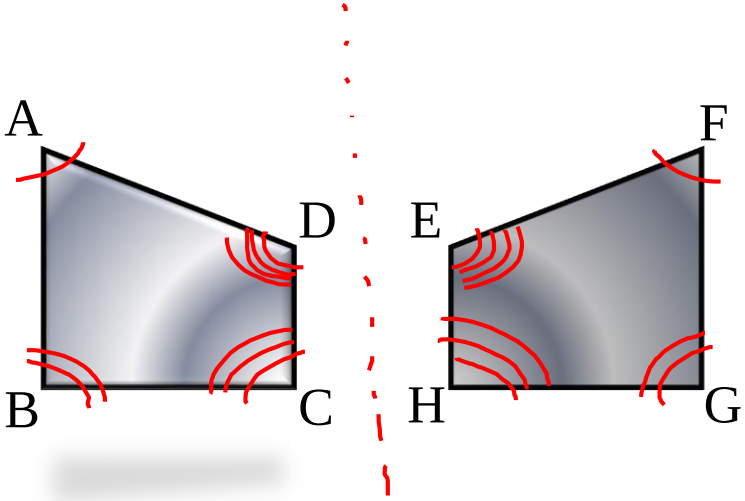
Congruent Polygons

Section 5.2

Congruent Polygons

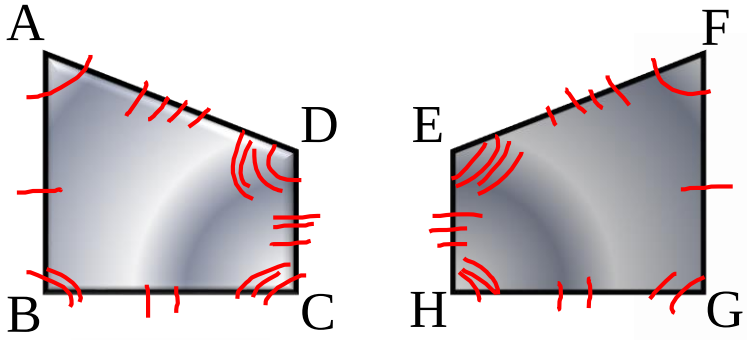
- Congruent polygons have congruent corresponding parts (matching sides and angles).
  - When you name congruent polygons, you must list corresponding vertices in the same order



ABCD ≅ FGHE

$ABCD \cong FGHE$

Congruent Polygons



$ABCD \cong FGHE$

Corresponding Sides

$\overline{AB} \cong \overline{FG}$
$\overline{BC} \cong \overline{HG}$
$\overline{DC} \cong \overline{EH}$
$\overline{AD} \cong \overline{EF}$

Corresponding Angles

$\angle A \cong \angle F$
$\angle B \cong \angle G$
$\angle C \cong \angle H$
$\angle D \cong \angle E$

Name all Corresponding Angles & Sides

$\triangle ABC \cong \triangle HIJ$

$\angle A \cong \angle H$

$\angle B \cong \angle I$

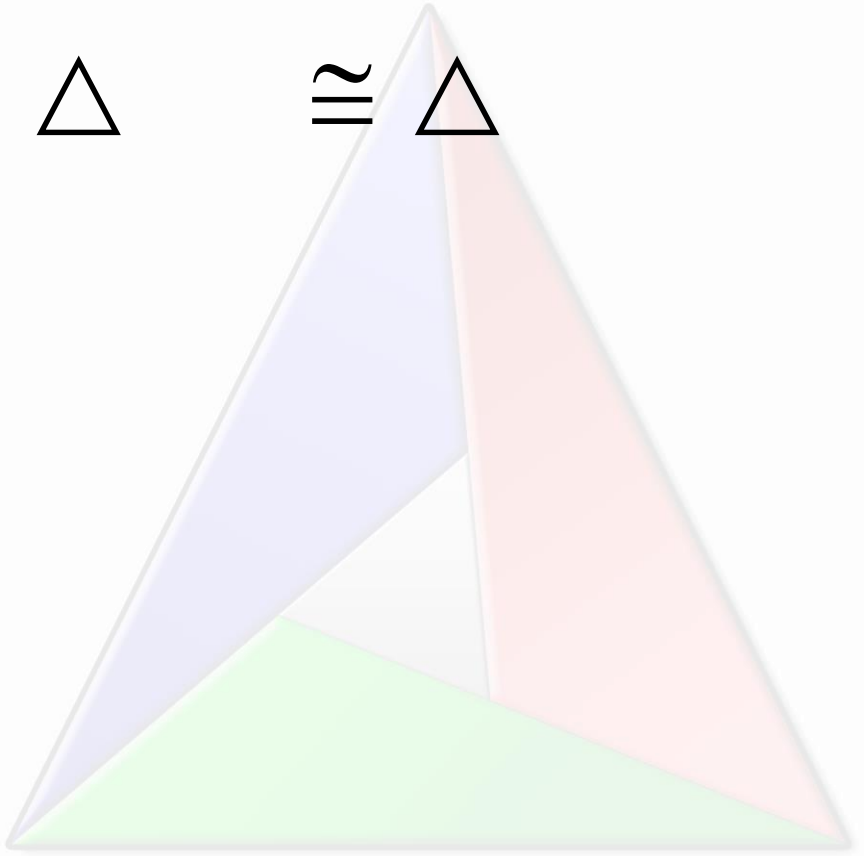
$\angle C \cong \angle J$

$\overline{AB} \cong \overline{HI}$

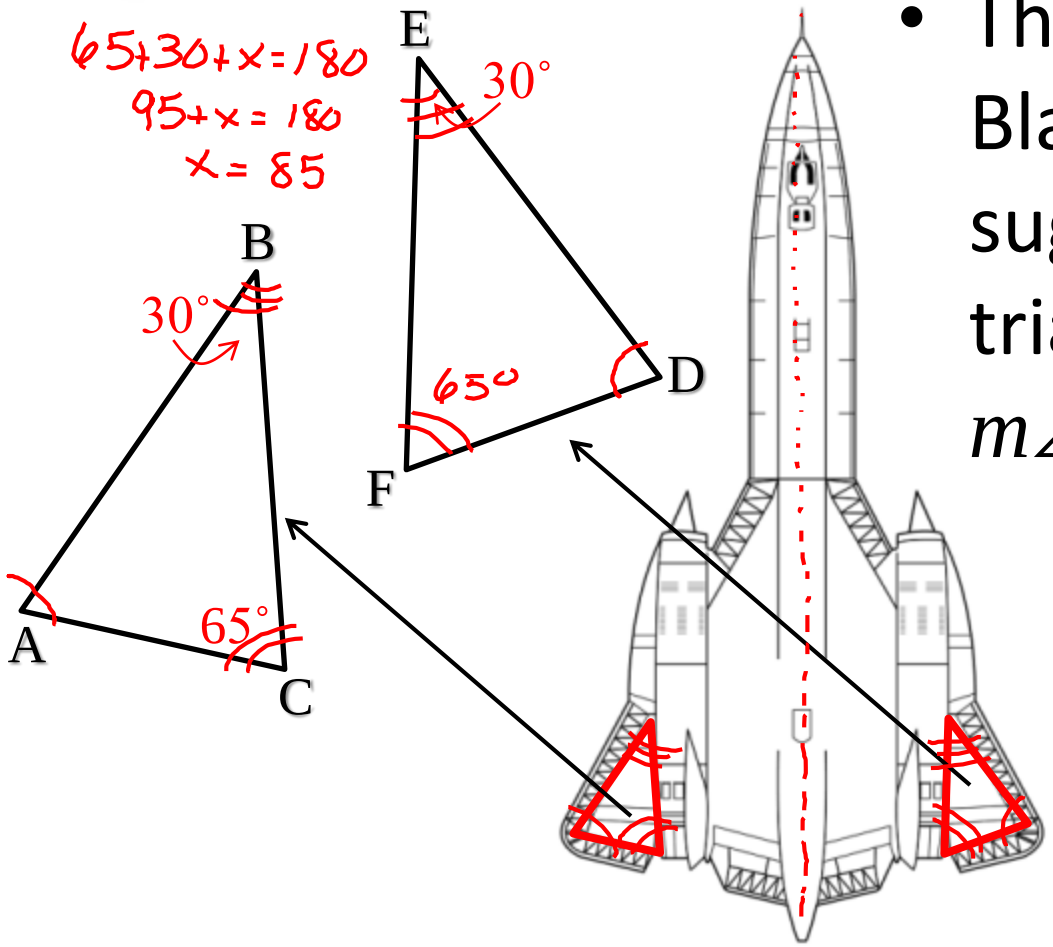
$\overline{BC} \cong \overline{IJ}$

$\overline{AC} \cong \overline{HJ}$

$\triangle \quad \cong \triangle$



Congruent Polygons



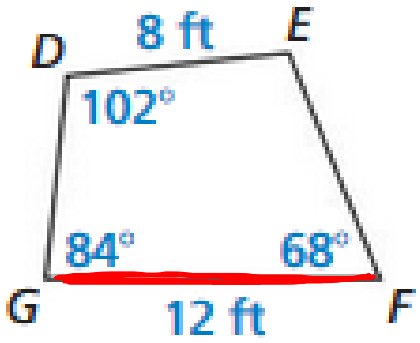
- The wings of an SR-71 Blackbird aircraft suggest congruent triangles. What is $m\angle D$? $= 85°$

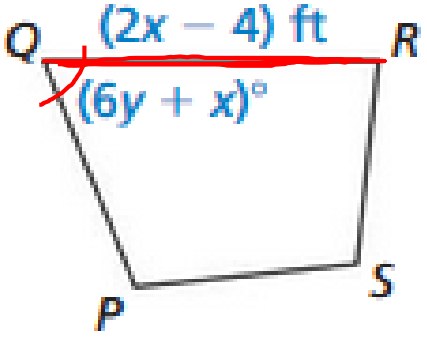
Congruent Polygons

- In the diagram, $DEFG \cong SPQR$. Find the values of *x* and *y*.

$2x - 4 = 12$
$2x = 16$
$x = 8$

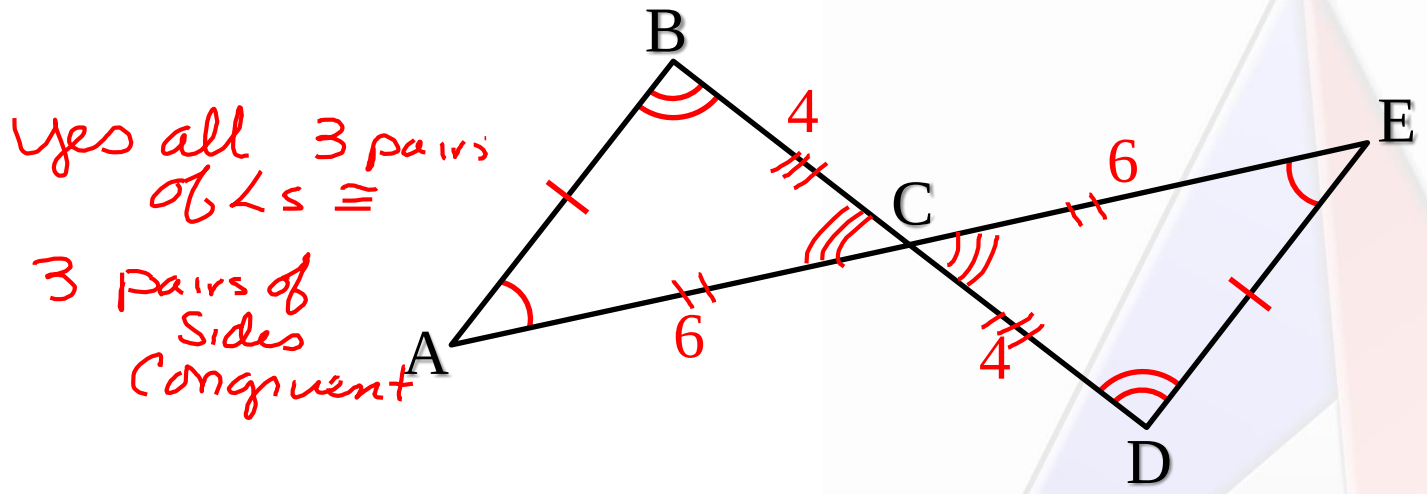
$6y + x = 68°$
$6y + 8 = 68$
$6y = 60$
$y = 10$





Finding Congruent Triangles

- Are the following triangles congruent? Justify.

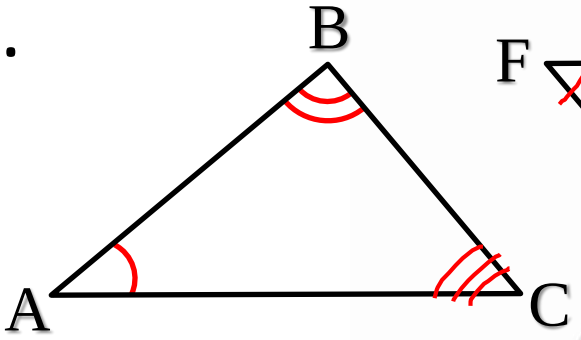


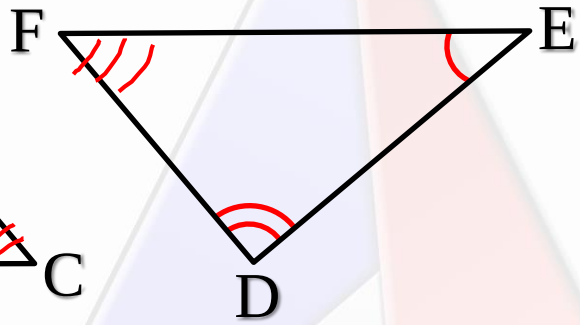
Yes all 3 pairs of ∠s ≅

3 pairs of Sides Congruent

Third Angles Theorem

- If two angles of one triangle are congruent to two angles of another triangle, then the third angles are congruent.



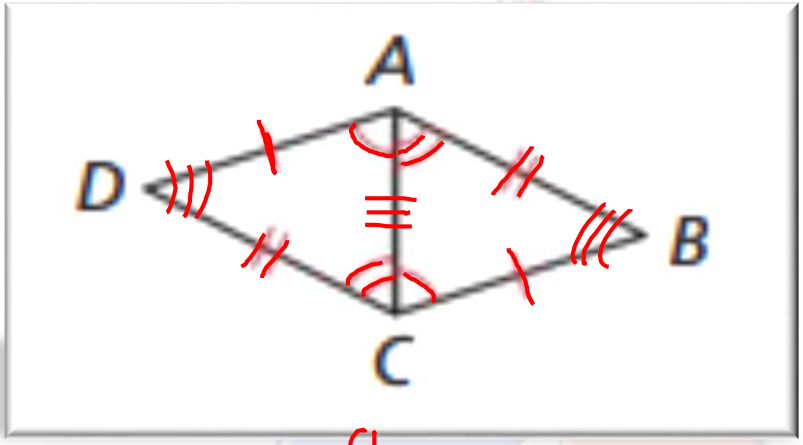


$$\angle A \cong \angle E, \angle B \cong \angle D \Rightarrow$$

Proof! YAY!!!

- Use the information in the given figure to prove that $\Delta ACD \cong \Delta CAB$.

AC ≅ AC
∠D + ∠B ≅ 3rd ∠ thm



reflexive

Lesson 5.2 p.243; 4-16 even, 26-29