Connecting Congruent Polygons 2.1 and 2.2
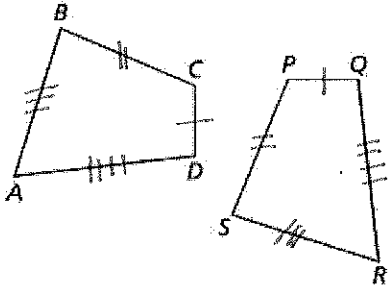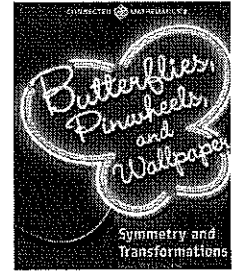

When two polygons are congruent, you can match the vertices in a way that pairs sides and angles of the same size; we call these **corresponding** sides and angles. In the figure to the left, quadrilaterals ABCD and PQRS are congruent.

A. Suppose you copied quadrilateral ABCD above, and transformed the copy so that it fit exactly on quadrilateral PQRS. Complete the statements below to show which vertices correspond. The arrow means "corresponds to".

A → __R__   B → __S__   C → __P__   D → __Q__

B. The notation $\overline{AB}$ means "line segment AB". The symbol ≅ means "is congruent to". Complete the statements below to show which pairs of sides in the two quadrilaterals are congruent.

$\overline{AB}$ ≅ __$\overline{RS}$__ $\overline{BC}$ ≅ __$\overline{SP}$__ $\overline{CD}$ ≅ __$\overline{PQ}$__ $\overline{DA}$ ≅ __$\overline{QR}$__

C. The notation ∠A means "angle A". Complete the statements below to show which angles are congruent.

∠A ≅ __∠R__   ∠B ≅ __∠S__   ∠C ≅ __∠P__   ∠D ≅ __∠Q__

In triangles ABC and RQP, ∠A ≅ ∠R, ∠B ≅ ∠Q, ∠C ≅ ∠P, $\overline{AB}$ ≅ $\overline{RQ}$, $\overline{BC}$ ≅ $\overline{QP}$, and $\overline{CA}$ ≅ $\overline{PR}$. Since all *corresponding parts* are congruent, the two triangles are congruent. Triangles ABC and RQP show a common way of marking congruent sides and angles. The sides with the same number of tic marks are congruent. The angles with the same number of arcs are congruent.
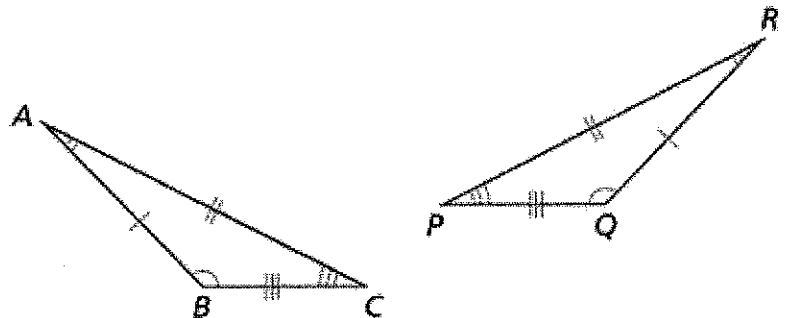
For each pair of triangles below, tell whether they are congruent or not congruent. If they are congruent, give a sequence of transformations that could map one to the other.

1.
Congruent? yes
What transformation(s)?
Rotation & translation

2.
Congruent? yes
What transformation(s)? Reflection

3.
Congruent? NO   What transformation(s)? (dilation)

4.
Congruent? yes   What transformation(s)? Rotation & Reflection & trans.