

**Essential Question:** Explain how you know when two polygons are congruent.

Questions:

1. \_\_\_\_\_

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\_\_\_\_\_?

2. \_\_\_\_\_

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\_\_\_\_\_?

Notes:



**MATH NOTES**

**METHODS AND MEANINGS**

Congruent Polygons

If there is a series of rigid transformations that maps one polygon onto the other, then the two polygons are congruent. The converse is also true: if two polygons are congruent, then there is a series of rigid transformations (reflections, rotations, translations) that maps one polygon onto the other.



If two line segments have equal lengths, or two angles have equal measures, they are also congruent, because there is a series of rigid transformations that maps one structure onto the other.

Likewise, if two polygons have all pairs of corresponding angles with equal measures and all pairs of corresponding sides with the same lengths, then the two polygons are congruent, because there is a series of rigid transformations that maps one polygon onto the other.

Finally, if you know that two polygons are congruent, then it follows that their corresponding parts are congruent. Shorthand notation for writing this fact for two triangles is:

$\triangle ABC \rightarrow \triangle PQR$

For example, if  $\triangle ABC \cong \triangle PQR$ , then it follows that  $\angle A \cong \angle P$ ,  $\angle B \cong \angle Q$ , and  $\angle C \cong \angle R$ . Also,  $\overline{AB} \cong \overline{PQ}$ ,  $\overline{AC} \cong \overline{PR}$ , and  $\overline{BC} \cong \overline{QR}$ .

**Answer the essential question:**

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