

3rd Grade Math: Congruent Figures

What Are Congruent Figures?

Congruent figures are shapes that are **exactly the same size and shape**. This means that when you place one shape on top of the other, they match perfectly. The sides, angles, and overall size of congruent figures are identical, even if the figures are flipped or rotated.

Key Features of Congruent Figures

1. **Same shape:**
Congruent figures have the same overall shape, like two identical triangles or squares.
2. **Same size:**
The lengths of the sides and the angles are exactly the same in congruent figures.
3. **Can be rotated or flipped:**
Even if a shape is turned upside down or rotated, it can still be congruent to another shape as long as their size and shape match.

How to Identify Congruent Figures

1. **Check if they are the same size:**
Compare the lengths of the sides. If all sides are the same length, the figures might be congruent.
2. **Check if they are the same shape:**
Look at the overall shape and angles. If the angles and sides match, the figures are congruent.
3. **Rotation and flipping:**
Sometimes, one figure might look different because it has been rotated or flipped, but if you turn it around, it should still match the other shape exactly.

Examples of Congruent Figures

1. **Two Identical Squares:**
If two squares have the same side lengths and angles, they are congruent.
2. **Two Triangles:**
If both triangles have the same side lengths and the same angles, they are congruent, even if one is upside down.
3. **Congruent Rectangles:**
If two rectangles have the same length and width, they are congruent.

Example 1: Identifying Congruent Triangles

Problem:

Look at two triangles. One triangle has side lengths of 3 cm, 4 cm, and 5 cm. The other triangle has the same side lengths. Are these triangles congruent?

Solution:

Yes, the triangles are **congruent** because all three sides have the same lengths.

Example 2: Congruent Squares**Problem:**

You have two squares. One has a side length of 6 inches, and the other has a side length of 5 inches. Are these squares congruent?

Solution:

No, the squares are **not congruent** because their side lengths are different.

Example 3: Flipping a Shape**Problem:**

Two rectangles have the same length and width, but one is flipped upside down. Are they congruent?

Solution:

Yes, the rectangles are **congruent** because they have the same size and shape, even though one is flipped.

Practice Problems

1. Are two triangles with the same side lengths congruent?
2. Can two shapes be congruent if they are different sizes?
3. If two circles have the same diameter, are they congruent?
4. Are two squares with different side lengths congruent?

Conclusion:

- **Congruent figures** are figures that have the same size and shape, even if one is rotated or flipped.
- To check if figures are congruent, look at their side lengths and angles. If both match, the figures are congruent.
- Understanding congruent figures helps in comparing shapes and learning about geometry in a visual way.