

Name: \_\_\_\_\_



## Transformations

Translation, Rotation, Reflection

### Background: UAE Smart City Transformations

In the United Arab Emirates, cities like **Dubai** and **Abu Dhabi** are designed with beautiful geometric patterns and modern structures. Architects and engineers use **mathematics** to plan buildings, roads, and designs.



Many designs in the UAE—such as **mosques**, towers, and traditional patterns—use **transformations** like:

- **Translation** (sliding shapes)
- **Rotation** (turning shapes)
- **Reflection** (flipping shapes)
- These transformations help create:
  - Symmetrical designs in **Islamic art**
  - Repeated patterns in buildings
  - Efficient layouts in **smart cities**



**Your Role:** You are a **young UAE architect!** Your job is to study how shapes move and transform so you can design buildings and patterns like those seen across the UAE.

Look at each figure and decide: ➡ Was it moved by **translation**, or **reflection**?

**Transformations** Tell how each figure was moved. Write *translation*, *rotation*, *reflection*.

