MA111: Contemporary mathematics

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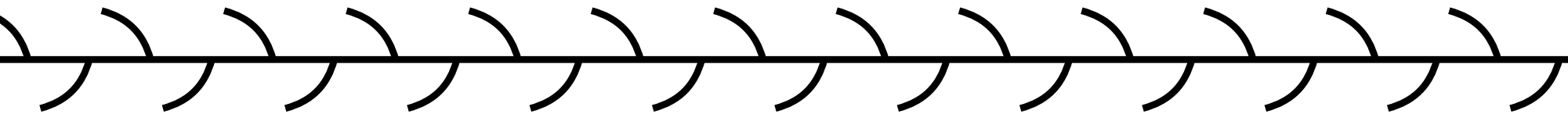
Entrance Slip (due 5 min past the hour):



- What symmetry group does this picture have?

Today: Translations and glide reflections

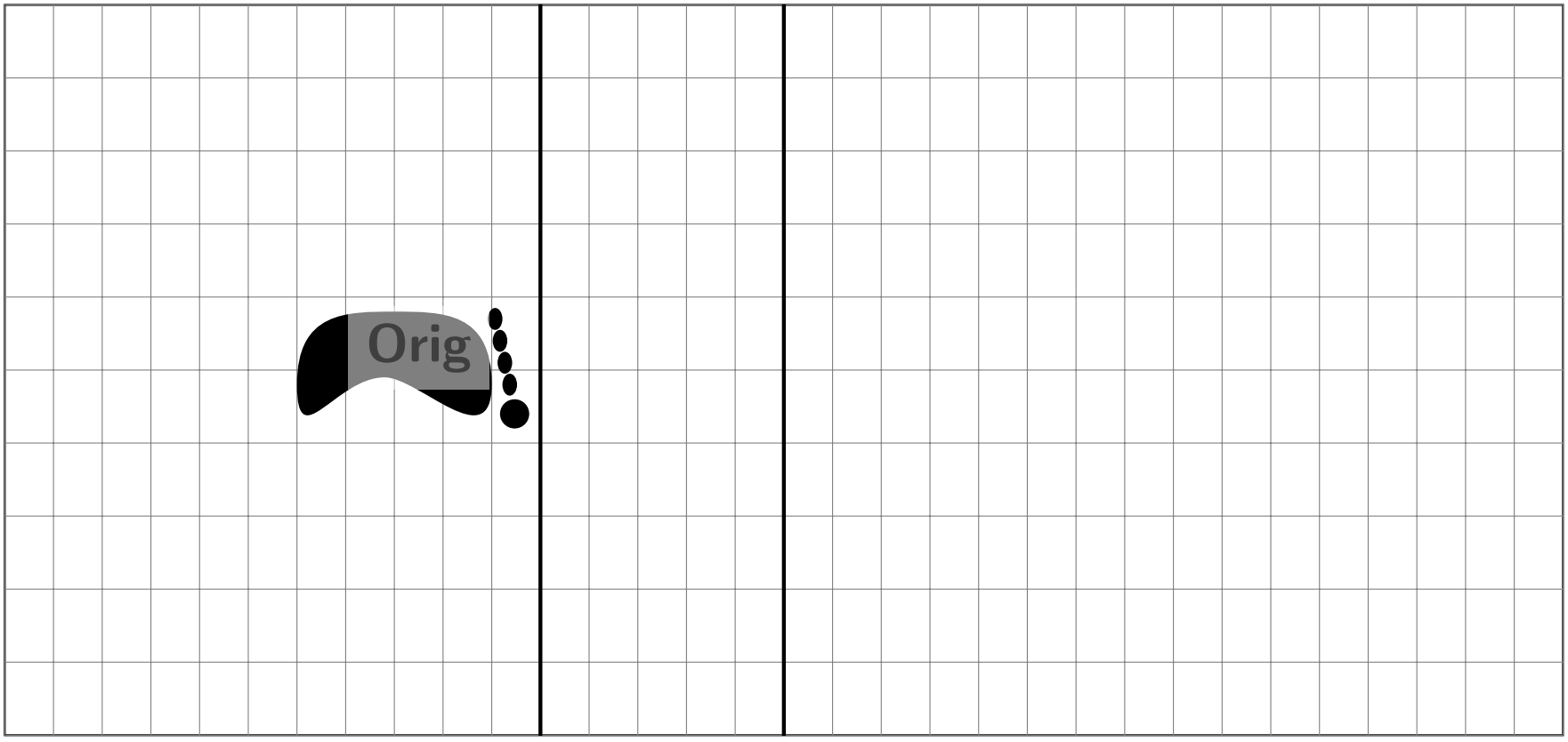
Context: reflection + reflection = ?

- If two lines of reflection cross, they cross at a center of rotation
- What happens if they don't cross?
- Two rotations often combine to a rotation
- What is the other possibility?
- What do three reflections do?

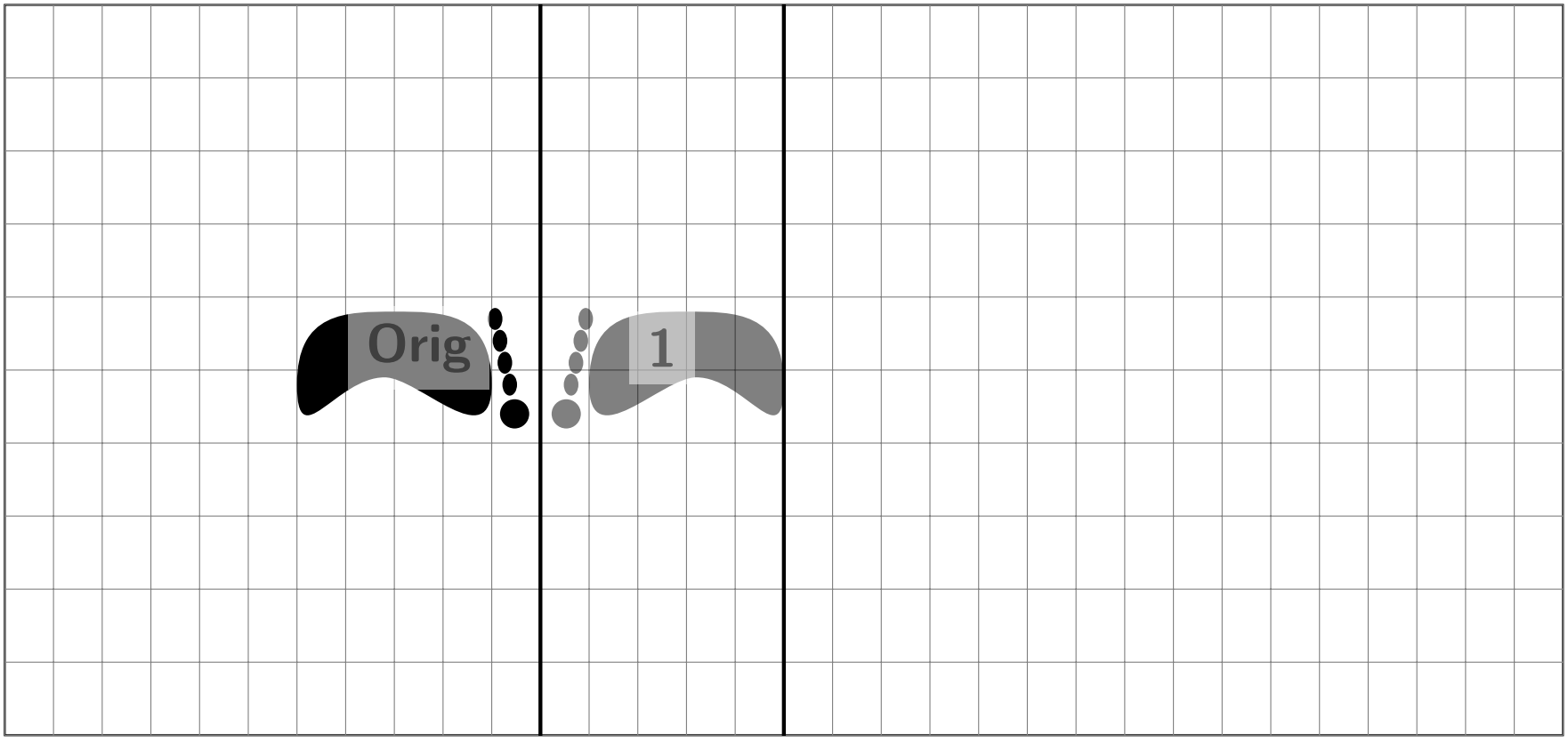
Activity: Reflect with the Mira

- Work on the worksheet
- Goal: Describe complicated sequence of motions as a single motion
- Two parallel reflections
- Three reflections
- Two funny rotations

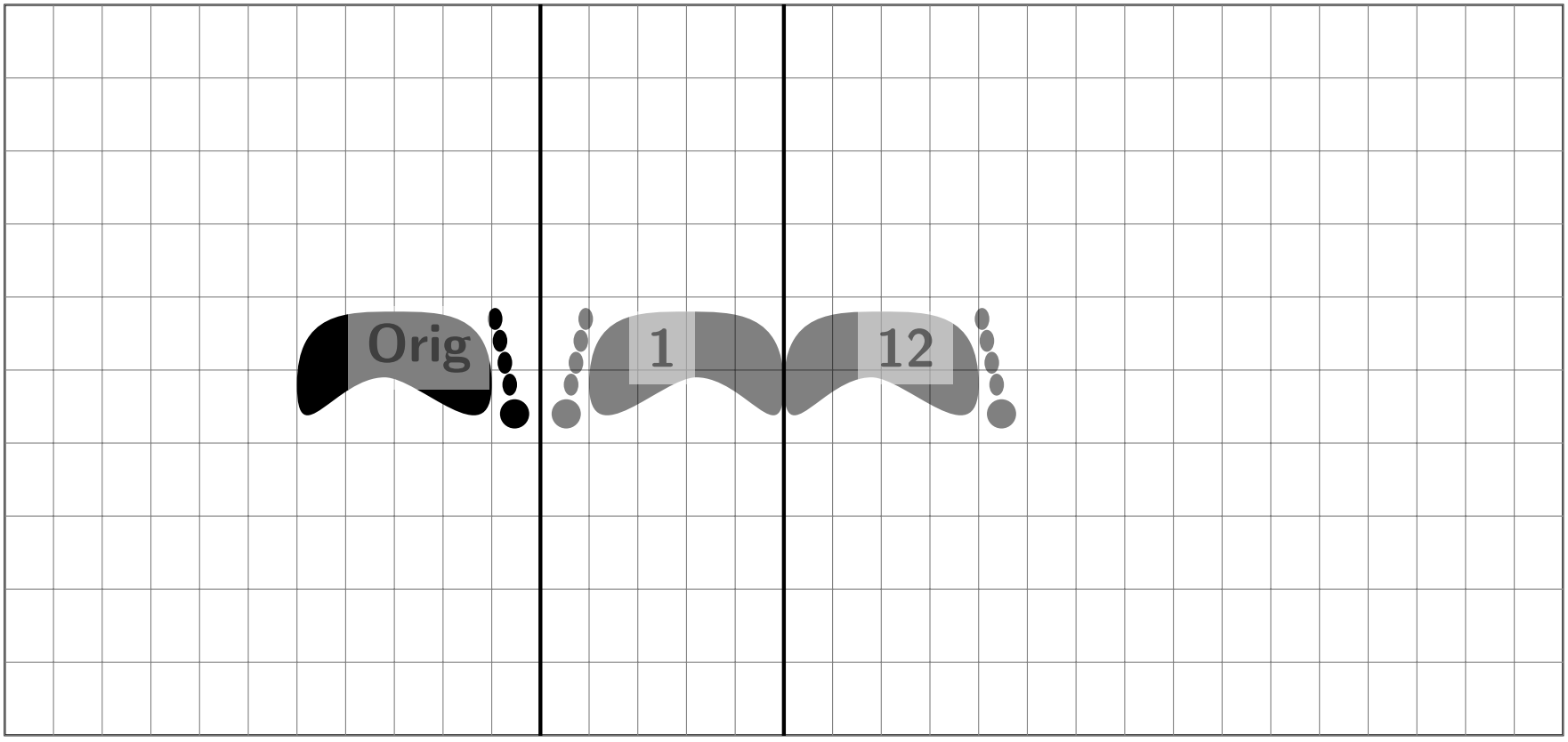
Activity recap: Two reflections



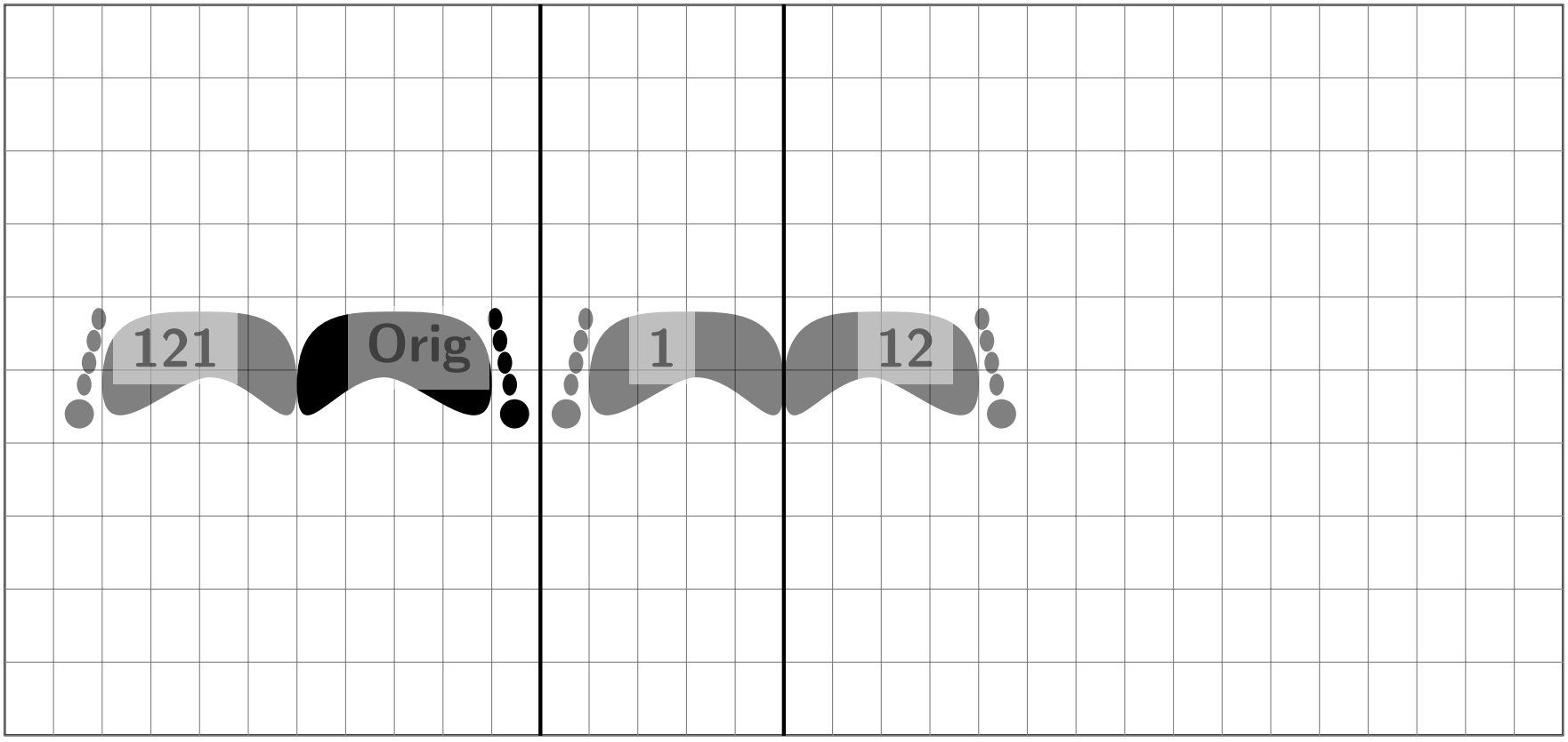
Activity recap: Two reflections



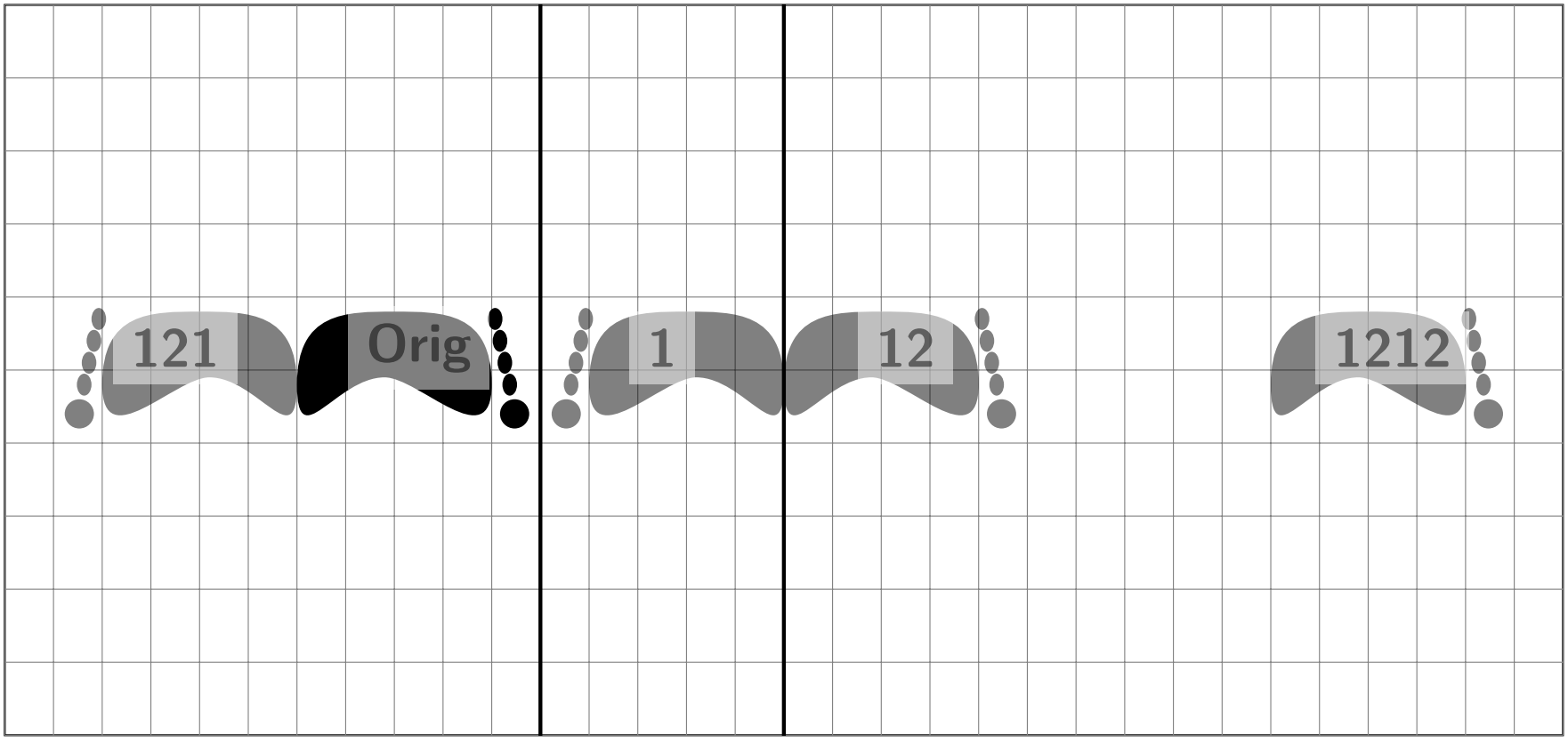
Activity recap: Two reflections



Activity recap: Two reflections



Activity recap: Two reflections



Fast: Parallel reflections

- Two parallel reflections produce a translation

  The direction is perendicular to the lines

  The distance is twice the distance between the lines

- If the two lines are the same line,

  The distance is 0, and $2 \times 0 = 0$

  No movement at all, they cancel

Fast: Three reflections

- Three reflections are either a single reflection or a glide reflection

Fast: Double rotations

- Two rotations normally form one rotation
- But occasionally (half-turns) form a translation

Assignment and exit slip

- Read and understand chapter 11
- Practice identifying symmetry groups in the world around you
- **Exit slip:** Draw a motif (like a foot) and then repeat it with a Jump symmetry