

Transforming patterns

Tuila cuts these regular polygons out of cardboard.



She chooses one shape and draws around it. She then reflects (flips) it along one side, and draws around it again. She does this several times to make a pattern. Using the same shape, she makes a second pattern by rotating the shape (turning on a corner) and drawing around it. She then makes a third pattern with this shape by translating (sliding) the shape and drawing around it.

For the chosen shape, she finds that all of the patterns look the same, no matter whether she reflects, rotates or translates the shape to make the pattern.

Tuila says this happens with all three shapes.

1. Do you think Tuila is right? Show how you know.
2. Chose some other regular polygons and investigate to find if this is true for them.