OXZHAF! symmetries in the plane and wallpaper patterns

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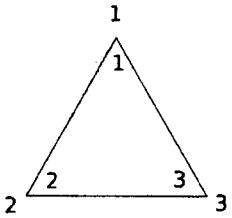
November 6, 2011

Problem 1. Sort the letters according to their symmetry type:

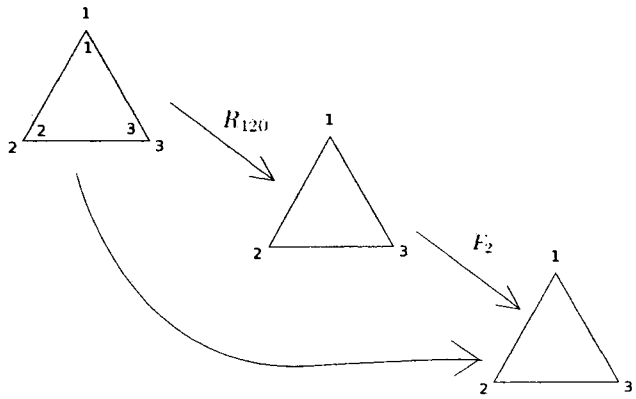
only rotation	only reflection	both	neither
S	A		

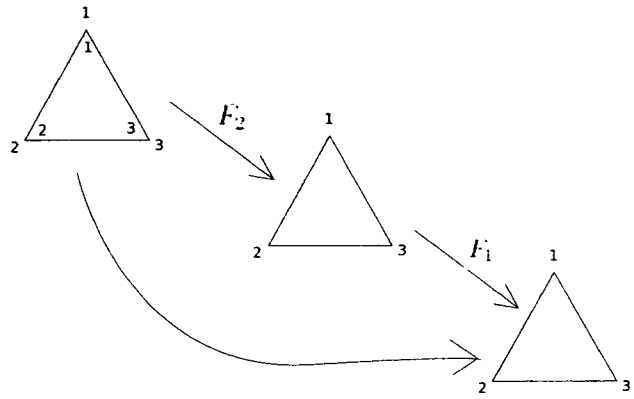
- Which letter has the most symmetry?
- Which letter has the second most symmetry?

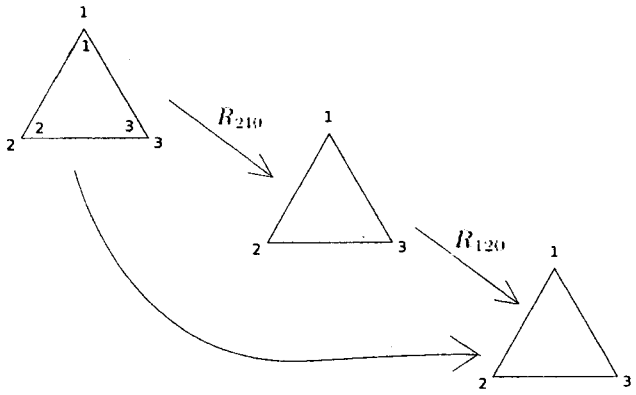
Problem 2. How many symmetries does an equilateral triangle have? Draw them. Which ones are reflections and which are rotations?

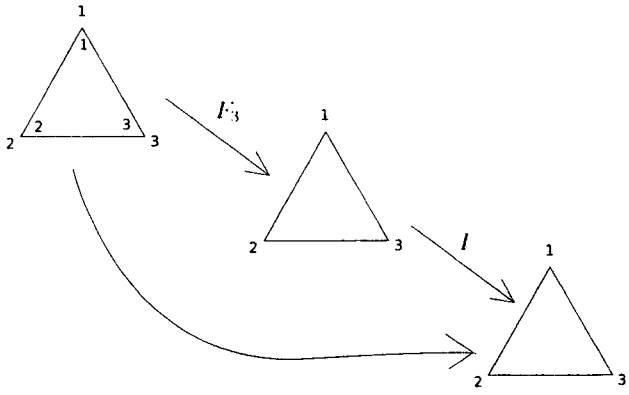


Problem 3. Label the unlabeled arrows:

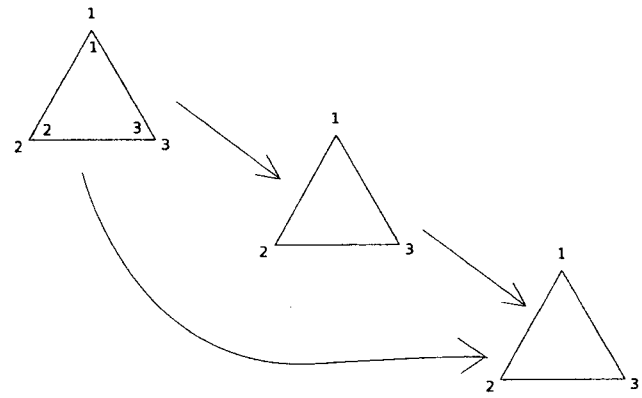


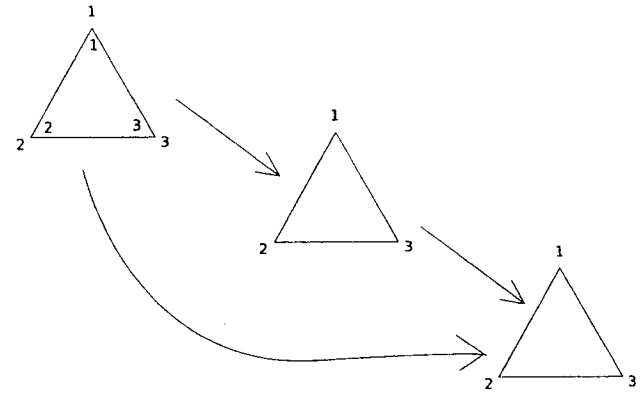


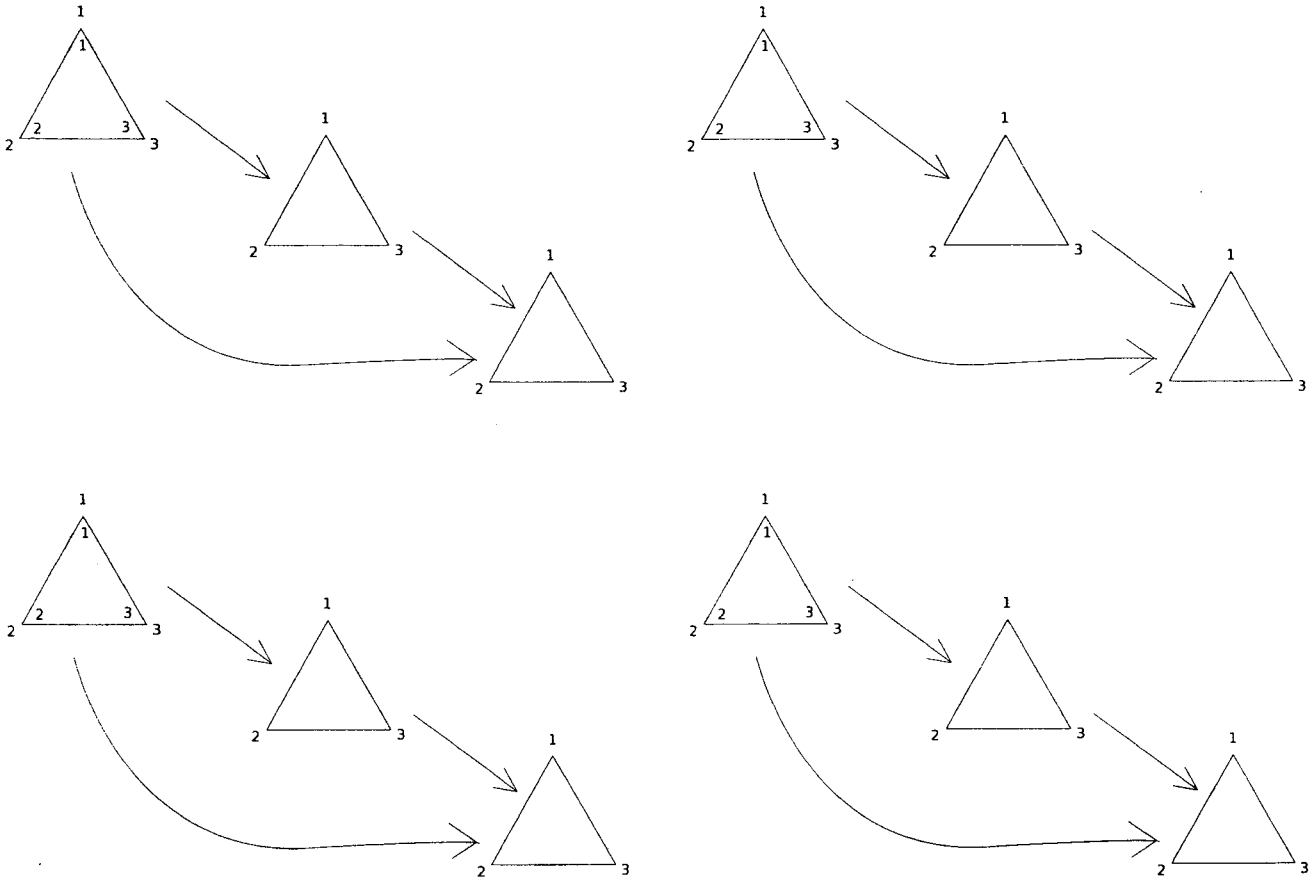




Problem 4. Try some more combinations of your own.



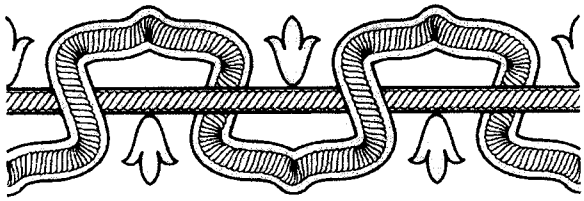


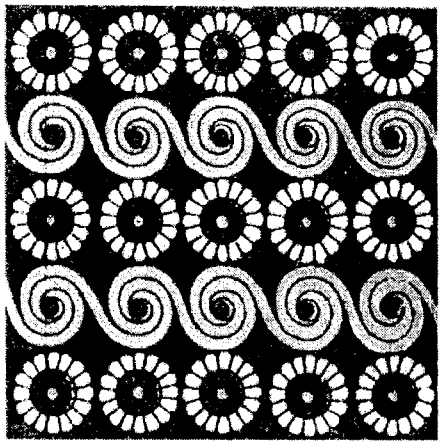
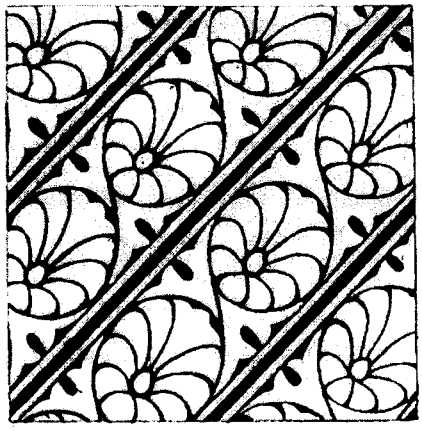
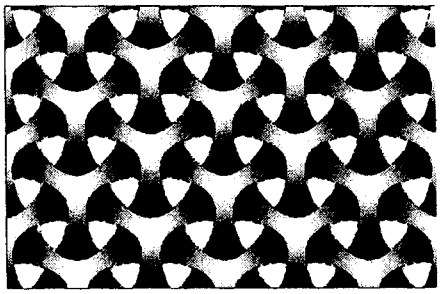
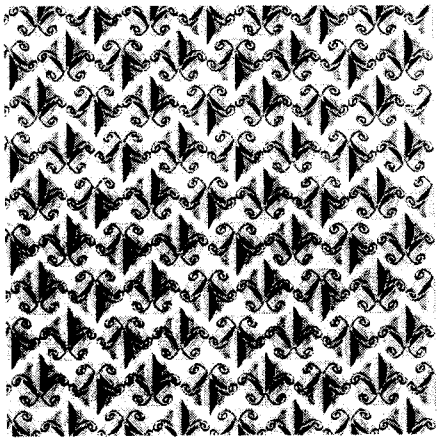
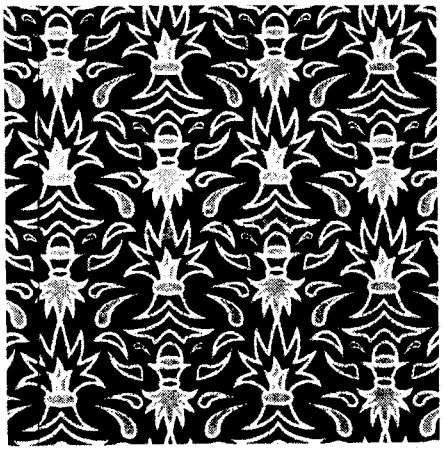
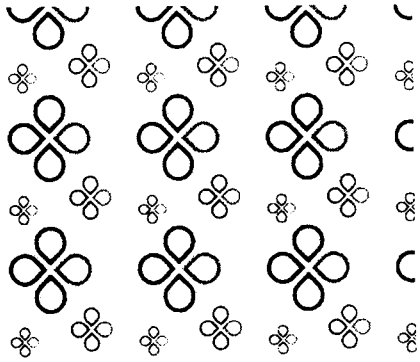


- When you combine 2 rotations what do you get? What about two reflections (flips)? What if you combine a flip with a reflection?
- Does order matter? For example, do you get the same result if you R_{120} follwed by F_2 as if you do F_2 followed by R_{120}? What if you do R_{120} followed by R_{240}?

Problem 5. How many symmetries does a square have? A regular pentagon? A regular polygon with n sides?

What kinds of symmetries do these frieze patterns have?



Can you draw some friezes that have symmetries none of these have?

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