

MATH 122

(Day 6)

Symmetry in Tessellations

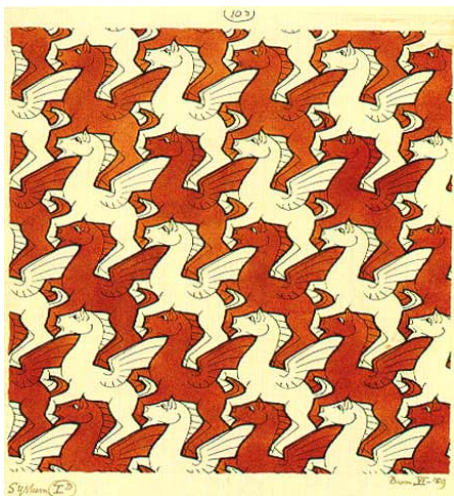
Richard Hammack

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Example 1



Example 1



Translation symmetry only

No reflections

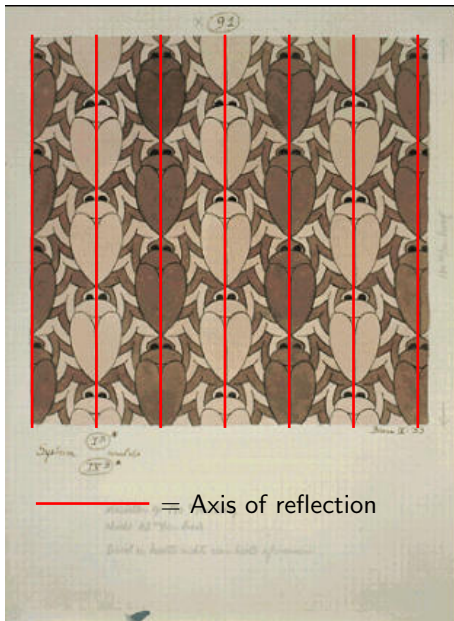
No glide reflections

No rotations

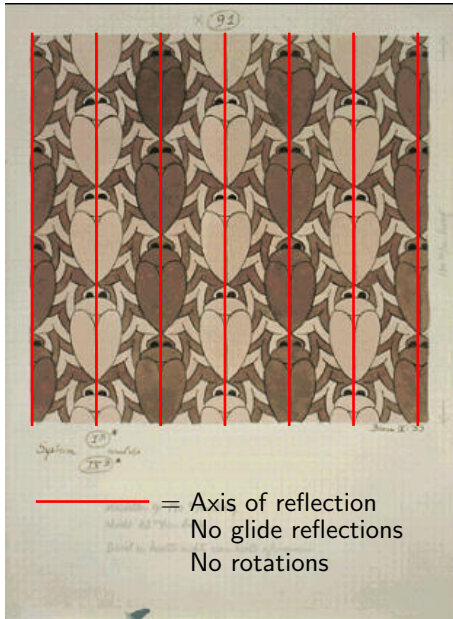
Example 2



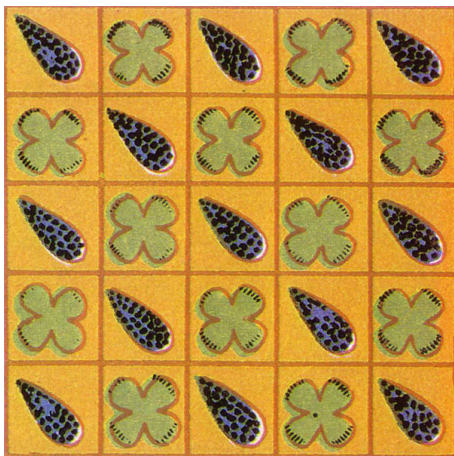
Example 2



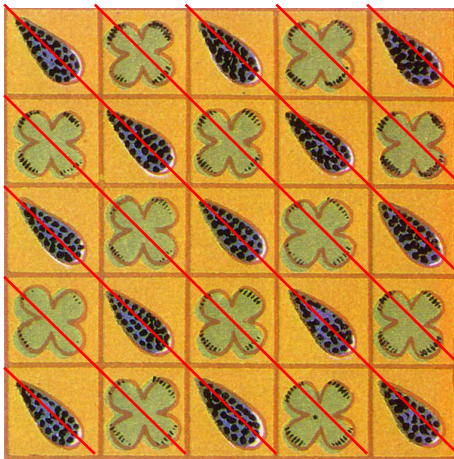
Example 2



Example 3

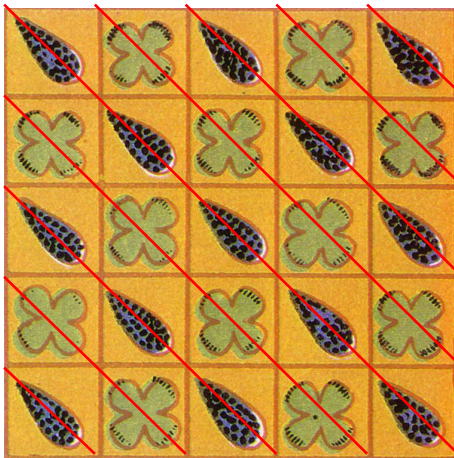


Example 3



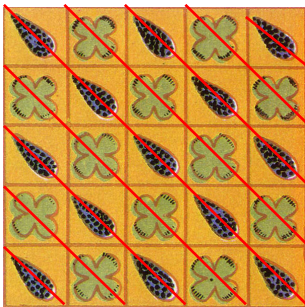
— = Axis of reflection

Example 3



— = Axis of reflection
No glide reflections
No rotations

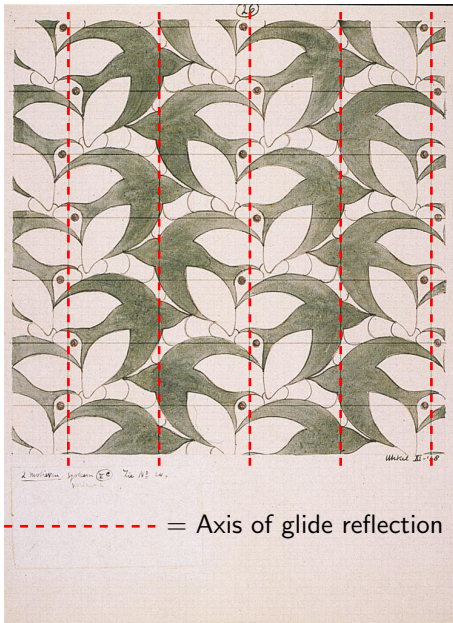
Patterns with the same symmetry type



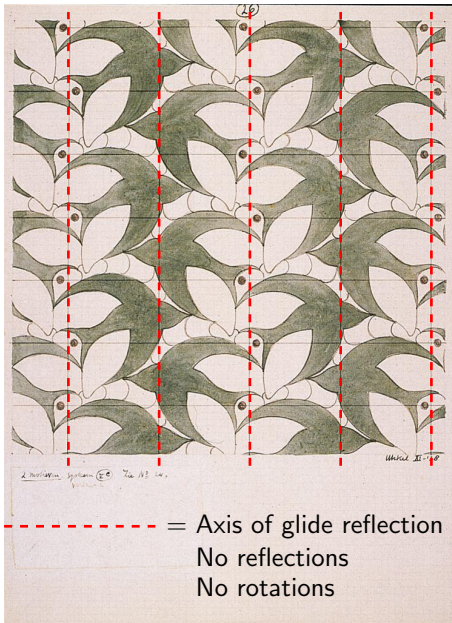
Example 4



Example 4



Example 4



Example 5



Example 5



— = Axis of reflection

Example 5



- = Axis of reflection
- - - = Axis of glide reflection

Example 5



- = Axis of reflection
- - - = Axis of glide reflection
- = Center of 180° rotation

Patterns with the same symmetry type



Patterns with the same symmetry type



Patterns with the same symmetry type



Patterns with the same symmetry type



Example 6

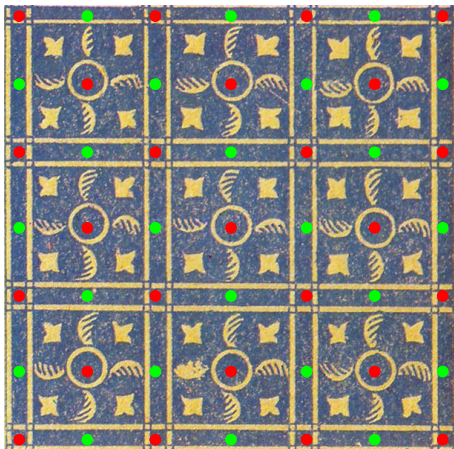


Example 6



● = Center of 90° rotation

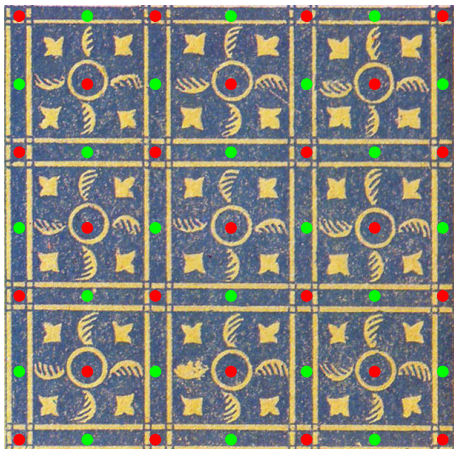
Example 6



● = Center of 90° rotation

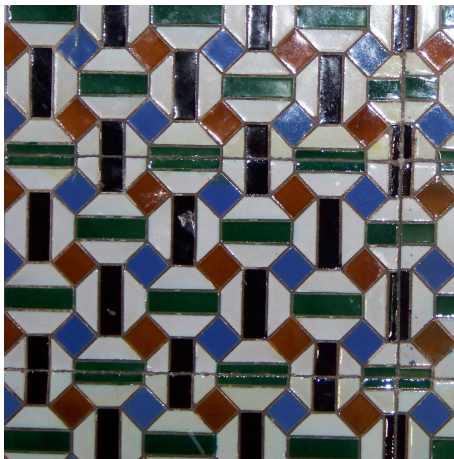
● = Center of 180° rotation

Example 6

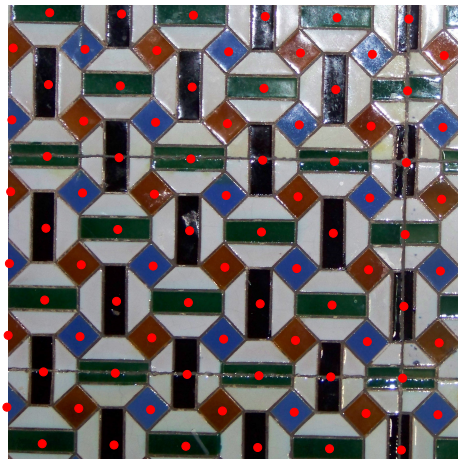


- = Center of 90° rotation
 - = Center of 180° rotation
- No reflections
No glide reflections

Example 7

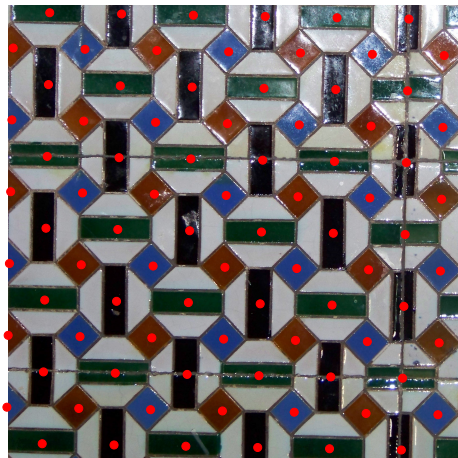


Example 7



• = Center of 180° rotation

Example 7



- = Center of 180° rotation
- No reflections
No glide reflections

Question:

How many different kinds of symmetry types are there?

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Answer:

17

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Details next time...

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How many different kinds of symmetry types are there?

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...but first, Assignment #5.

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Answer:

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...but first, Assignment #5.

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