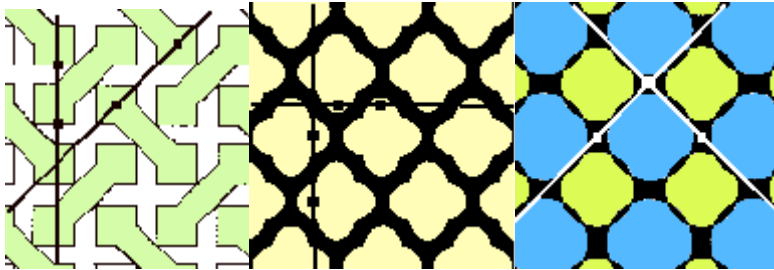


Answer Key – Glide Reflections

1. Each left footprint is the reflection of a right footprint, but it has been translated.
2. Answers will vary.
3. To give a glide reflection, you must specify the mirror line and the distance translated.
4. The same glide reflection performed twice will result in a translation.
5. You must know the location and direction of the mirror line and you must know the distance translated.
6. The image of a glide reflection will look like a translation only when the object being transformed has a line of symmetry parallel to the mirror line of the glide reflection.
7. A glide reflection can have fixed points only if the translation vector is the zero vector (has zero length); in that case, any point on the mirror line will be left fixed by the glide reflection.
8. The mirror line goes horizontally through the center of the design. In a, the translation distance is the width of one block. In b, the translation distance is equal to one half of the base of the triangles.
9. Both a and b were made using glide reflections. The mirror line goes horizontally through the center of the band and the translation amount is from the center of one block to the center of the next block. The pattern in c does not have a glide reflection because of the way it is colored.
10. The mirror lines are drawn in. Translation distances are given by the dots.



11. Answers will vary. Pavements and fabric patterns are good sources of glide reflections.
12. Answers will vary.
13. The blue mirror line must be parallel to the red mirror line.
14. Mathematicians prefer to have the translation parallel to the mirror line since it is simpler. They know that a translation followed by a reflection is the same as some glide reflection.

Taking Stock Answers

1. To define a glide reflection, you must give the mirror line and amount of translation.
2. Start with a design, a mirror line, and a translation distance. Repeatedly reflect and translate the design. Designs will vary.
3. See if there is a design that is repeated in the same way that footprints are repeated. The mirror line will be halfway between the left and right “footprints.”
4. It is for economy and simplicity. We know that a reflection followed by a translation is the same as some glide reflection, so this is not a restriction on the designs we can create.