Geometry Chapter 7 Review

In #1 – 8, identify each statement as true or false.

1. The composition of two reflections across two parallel lines is equivalent to a translation. True
2. If two intersecting lines form an acute angle of 40°, then a composition of two reflections across the intersecting lines is equivalent to a 40° rotation. False
3. A translation of \(\langle 4, 2 \rangle\) followed by a translation of \(\langle -8, -5 \rangle\) is equivalent to the single translation \(\langle -4, -3 \rangle\). True
4. A rotation of 40° followed by a rotation of 160° about the same point is equivalent to the single rotation of 200° about the point. True
5. Two consecutive reflections across a pair of parallel lines 24 cm apart is equivalent to a translation of length 24 cm. False
6. A glide reflection is the composition of a translation and a rotation. False
7. The design below has rotational symmetry. True
8. The design below has a vertical line of symmetry but no horizontal line of symmetry. False
9. Draw a design that has both a vertical line of symmetry and a horizontal line of symmetry.

Sample

10. Draw a design that has 6-fold rotational symmetry.

Sample
In #11 - 12, transform each image according to the rule.

11. \((x, y) \rightarrow (x, y - y)\)

\[A(1, 4) \rightarrow A'(1, 14)\]
\[B(5, 7) \rightarrow B'(5, 7)\]
\[C(6, 3) \rightarrow C'(6, 3)\]

12. \((x, y) \rightarrow (y, x)\)

\[A(-7, -3) \rightarrow A'(3, -7)\]
\[B(-7, -6) \rightarrow B'(6, -7)\]
\[C(-3, 5) \rightarrow C'(5, -3)\]

13. Consider \(\triangle ABC\).

a. Translate \(\triangle ABC\) using the rule \((x, y) \rightarrow (x + 2, y - 4)\). Then translate its image, \(\triangle A'B'C'\), using the rule \((x, y) \rightarrow (x - 5, y - 2)\). Label the final image \(\triangle A''B''C''\).

b. Give the ordered pair rule for the single transformation that is equivalent to the composition of these two translations. \((x, y) \rightarrow (x - 3, y - 6)\) or \((-3, -6)\)

c. Give the ordered pair rule for the single transformation that will bring \(\triangle A''B''C''\) back to \(\triangle ABC\). \((x, y) \rightarrow (x + 3, y + 6)\) or \((3, 6)\)