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Section 6.4 Extra Practice

- 1. Use a compass and protractor to rotate each point according to the instructions. State the new coordinates for each point.
 - a) (-2, 6) 90° counterclockwise about the origin
 - **b)** (-4, 3) 90° clockwise about the centre of rotation (-1, 2)
- **2.** Use the rotation rule to rotate each point according to the instructions. State the new coordinates for each point.
 - **a)** (3, 5) 180° about the origin
 - b) (-1, -8) 270° counterclockwise about the origin
- **3.** Use the rotation rule to rotate each shape according to the instructions.
 - a) 180° about the origin



b) 90° counterclockwise about the origin



- **4.** Use a compass and protractor to rotate each shape according to the instructions.
 - a) 90° clockwise about the centre of rotation K



b) 270° clockwise about the centre of rotation M





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(continued)

- On a coordinate grid, plot, rotate, and reflect each point as indicated. State the coordinates of the transformed point.
 - a) (2, 5) Rotate 180° about the origin, and reflect over the *x*-axis.
 - b) (-3, 4) Rotate 90° clockwise about the origin, and reflect over the *y*-axis.
- **6.** On a coordinate grid, plot, rotate, and translate each point as indicated. State the coordinates of the transformed point.
 - a) (-1, -6) Rotate 90° counterclockwise about the origin, and translate 6 units right.
 - b) (3, -2) Rotate 180° about the origin, and translate 3 units down.
- 7. On a coordinate grid, plot, rotate, reflect, and translate each point as indicated. State the coordinates of the transformed point.
 - a) (2, 5) Rotate 90° clockwise about the origin, reflect over x = 1, and translate 2 units left.
 - **b)** (-3, 4) Rotate 180°, reflect over y = -1, and translate 3 units up.

- **8.** Transform each shape as instructed.
 - a) Rotate 180° about point A, and translate 2 units left.



b) Rotate 90° clockwise about the origin, and reflect over line *a*.



- **9. a)** Describe the angle of rotation if point A rotates clockwise to point B for each figure.
 - **b)** How many lines of symmetry does each figure have?



