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## BLM 6-7

## 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) $(-2,6) 90^{\circ}$ counterclockwise about the origin
b) $(-4,3) 90^{\circ}$ 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) $(3,5) 180^{\circ}$ about the origin
b) $(-1,-8) 270^{\circ}$ counterclockwise about the origin
3. Use the rotation rule to rotate each shape according to the instructions.
a) $180^{\circ}$ about the origin

b) $90^{\circ}$ counterclockwise about the origin

4. Use a compass and protractor to rotate each shape according to the instructions.
a) $90^{\circ}$ clockwise about the centre of rotation K

b) $270^{\circ}$ clockwise about the centre of rotation M

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5. On a coordinate grid, plot, rotate, and reflect each point as indicated. State the coordinates of the transformed point.
a) $(2,5)$ Rotate $180^{\circ}$ about the origin, and reflect over the $x$-axis.
b) $(-3,4)$ Rotate $90^{\circ}$ 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 $90^{\circ}$ counterclockwise about the origin, and translate 6 units right.
b) $(3,-2)$ Rotate $180^{\circ}$ 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 $90^{\circ}$ clockwise about the origin, reflect over $x=1$, and translate 2 units left.
b) $(-3,4)$ Rotate $180^{\circ}$, reflect over $y=-1$, and translate 3 units up.
8. Transform each shape as instructed.
a) Rotate $180^{\circ}$ about point A, and translate 2 units left.

b) Rotate $90^{\circ}$ 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?
i)

ii)

