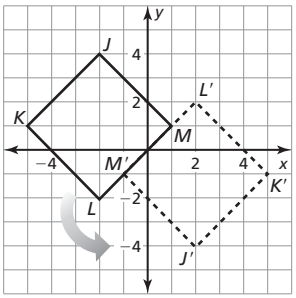
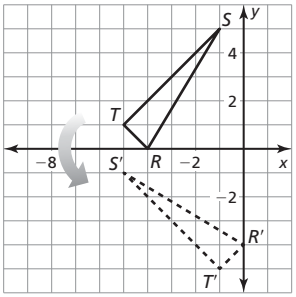
4.3 Extra Practice

1.



2.



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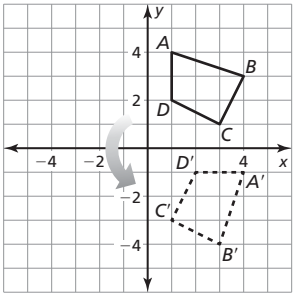
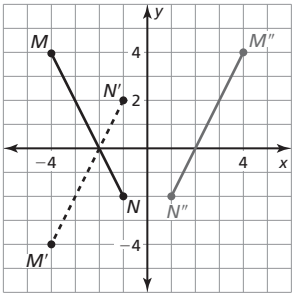


4.



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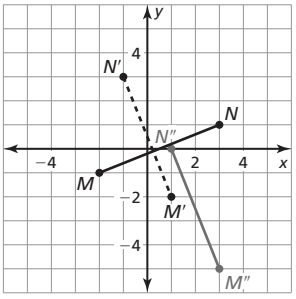

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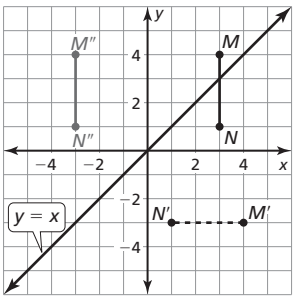
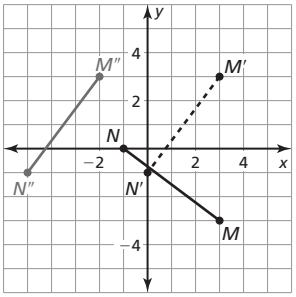
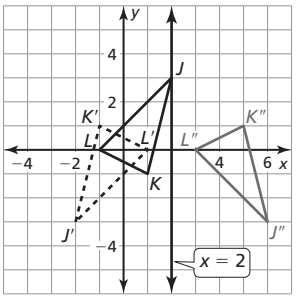


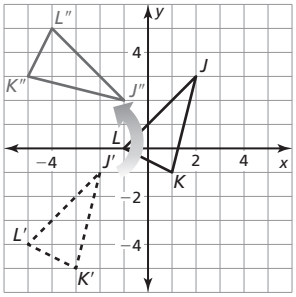
7.



8.



9.



10. yes; Rotations of 36°, 72°, 108°, 144°, and 180° about the center map the figure onto itself.

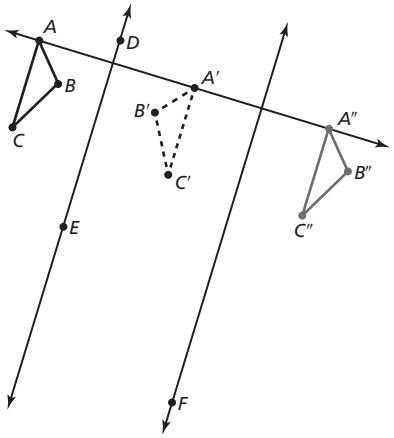
11. no

4.4 Explorations

1. a. Check student's work.

b. Check student's work.

c. *Sample answer:*



The line passes through A' and A''.

d. The distance between A and A'' is twice the distance between the parallel lines.

e. yes; $\triangle A''B''C''$ is a translation of $\triangle ABC$.

f. If two lines are parallel, and a preimage is reflected in the first line and then in the second, the final image is a translation of the preimage. The distance between each point in the preimage and its corresponding point in the final image is twice the distance between the parallel lines.

2. a. Check student's work.

b. Check student's work.

c. *Sample answer:* 50°

d. The final image after the reflections is the same as a rotation about point D using an angle that is twice the measure of the angle of intersection.

3. The image of a figure reflected in two lines is congruent to the preimage. The image of a figure reflected in two parallel lines is a translation of the preimage. The image of a figure reflected in two lines that intersect in point D is a rotation in point D of the preimage.

4. 6.4 in.

4.4 Extra Practice.

1. $\square ABCD \cong \square MNOP$, $\square STUV \cong \square EFGH$, $\triangle PQR \cong \triangle JKL$; $\square MNOP$ is a translation 5 units left and 2 units down of $\square ABCD$. $\square STUV$ is a reflection of $\square EFGH$ in the line $y = x$. $\triangle JKL$ is a 90° rotation of $\triangle PQR$.

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