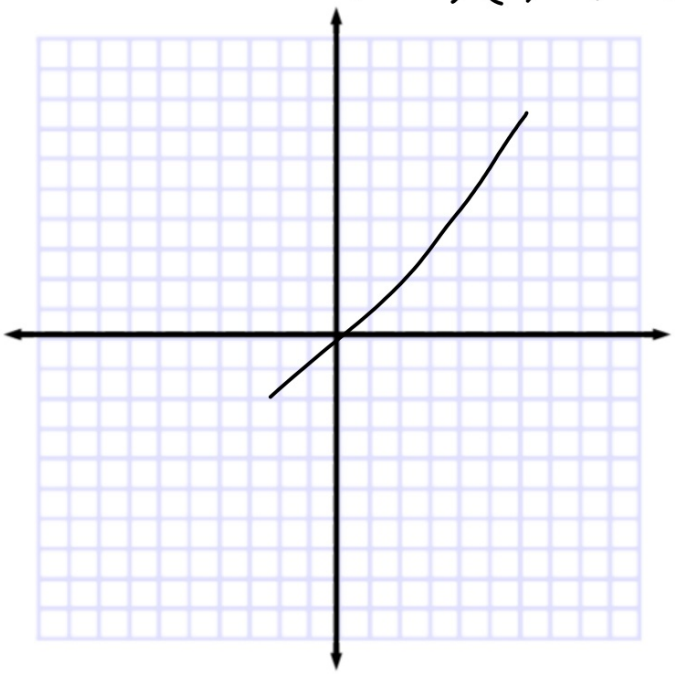
Geometry
Review for Ch. 9 test (Mon.)

Quiz 9.6

Graph each figure and its image after the specified reflection.
(Lesson 9-1)

3. $\triangle FGH$ has vertices $F(-4, 3)$, $G(-2, 0)$, and $H(-1, 4)$; in the y-axis

(4, 3) (2, 0) (1, 4)

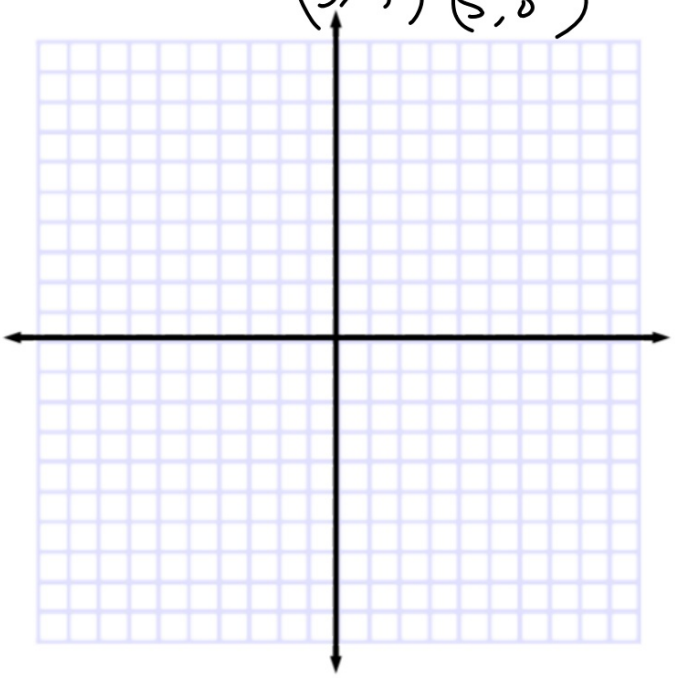


Graph each figure and its image after the specified translation.
(Lesson 9-2)

6. $\triangle ABC$ with vertices $A(0, 0)$, $B(2, 1)$, $C(1, -3)$; $\langle 3, -1 \rangle$

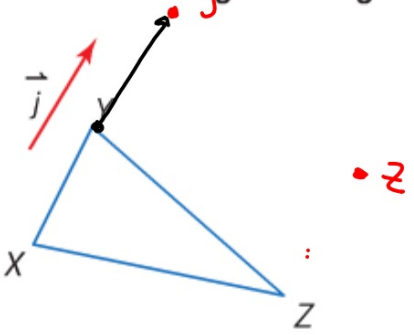
3-1 3-1

(3,-1) (5,0)

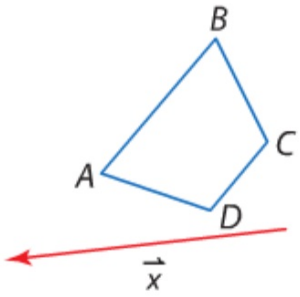


Copy the figure and the given translation vector. Then draw the translation of the figure along the translation vector. (Lesson 9-2)

8.



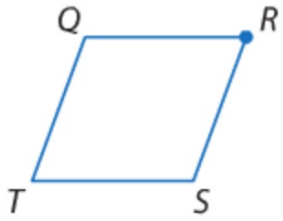
9.



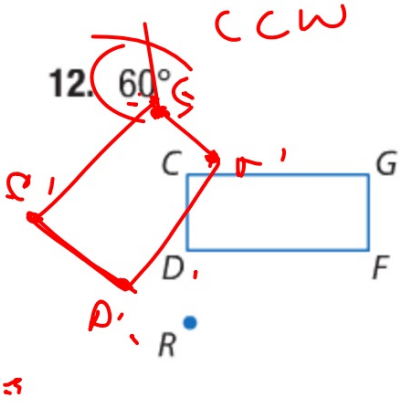
Copy each polygon and point *R*. Then use a protractor and rule
to draw the specified rotation of each figure about point *R*.

(Lesson 9-3)

11. 45°



12. 60°



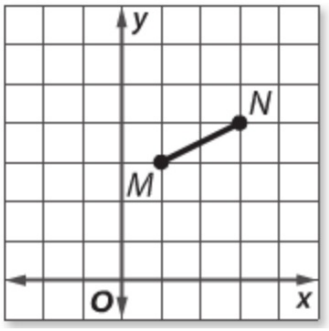
13. MULTIPLE CHOICE What is the image of point *M* after a rotation of 90° about the origin? (Lesson 9-3)

90° (x y)

(-y, x)

*180 (-x, -y)

270 (y, -x)



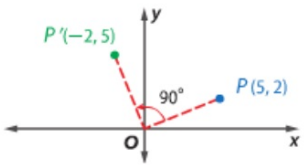
KeyConcept Rotations in the Coordinate Plane

90° Rotation

To rotate a point 90° counterclockwise about the origin, multiply the y-coordinate by -1 and then interchange the x- and y-coordinates.

Symbols $(x, y) \rightarrow (-y, x)$

Example

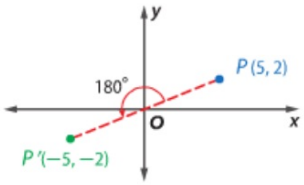


180° Rotation

To rotate a point 180° counterclockwise about the origin, multiply the x- and y-coordinates by -1.

Symbols $(x, y) \rightarrow (-x, -y)$

Example

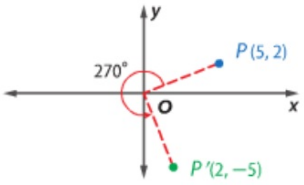


270° Rotation

To rotate a point 270° counterclockwise about the origin, multiply the x-coordinate by -1 and then interchange the x- and y-coordinates.

Symbols $(x, y) \rightarrow (y, -x)$

Example



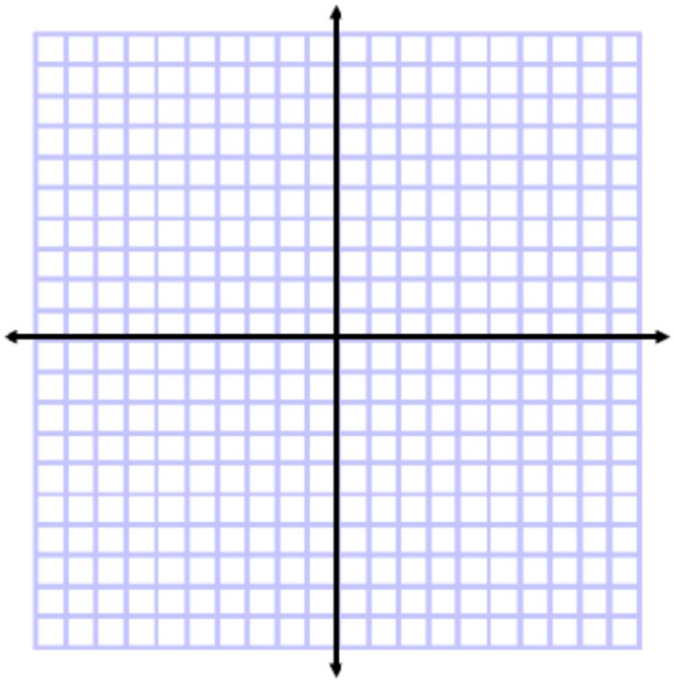
9-4 Compositions of Transformations

Graph each figure with the given vertices and its image after the indicated transformation.

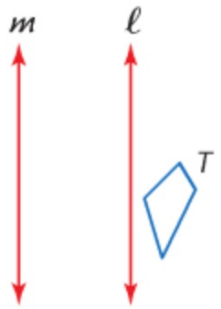
23. $\overline{CD}$: $C(3, 2)$ and $D(1, 4)$
Reflection: in $y = x$
Rotation: 270° about the origin.

$C'(2,3)$ $D'(4,1)$

$C''(3,-2)$ $D''(1,-4)$



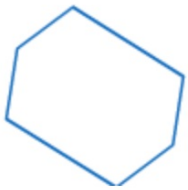
26. Copy and reflect figure T in line ℓ and then line m. Then describe a single transformation that maps T onto T''.



9-5 Symmetry

State whether each figure appears to have line symmetry. Write *yes* or *no*. If so, copy the figure, draw all lines of symmetry, and state their number.

27.



28.

State whether each figure has rotational symmetry. Write *yes* or *no*. If so, copy the figure, locate the center of symmetry, and state the order and magnitude of symmetry.

29.

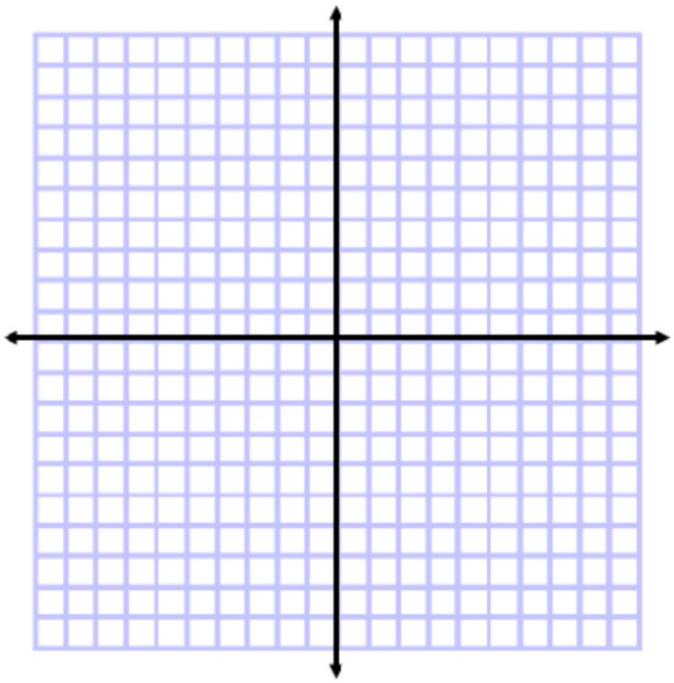
30.

9-6 Dilations

32. Copy the figure and point S. Then use a ruler to draw the image of the figure under a dilation with center S and scale factor $r = 1.25$.

Example 6

Square *ABCD* has vertices *A*(0, 0), *B*(0, 8), *C*(8, 8), and *D*(8, 0). Find the image of *ABCD* after a dilation centered at the origin with a scale factor of 0.5.



Tire tracings (mini project)