

1. Define *reflection*:

2. Define *preimage*:

3. Define *line of symmetry*:

4. Define *translation*:

5. Define *transformation*:

6. List the three main transformations:

7. What happens to the ordered pair x, y when you have a **reflection**:

over the x -axis? _____

over the y -axis? _____

over $y = x$? _____

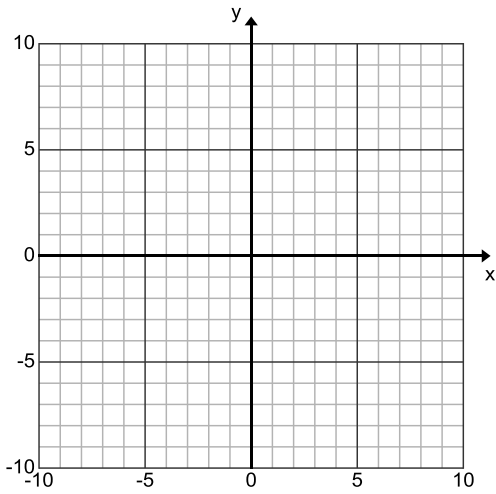
For problems 8 and 9, choose a letter of the alphabet (capital or lower case) that shows symmetry. Show the letter and its line of symmetry. For example: Vertical Symmetry

8. Vertical Symmetry

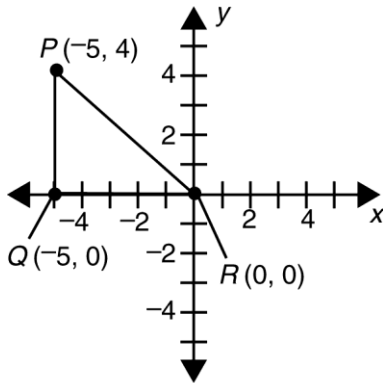
9. Horizontal Symmetry



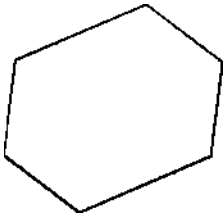
10. Graph the triangle whose vertices have the coordinates given below. Then draw its reflection in the y -axis.
 $(-7, 2)$, $(-1, 2)$, $(-6, 8)$. Make sure you label all coordinate points.



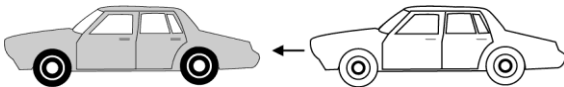
11. $\triangle PQR$ below is rotated clockwise 90° about the origin. Find the coordinates of the vertices of the image $\triangle P'Q'R'$. _____



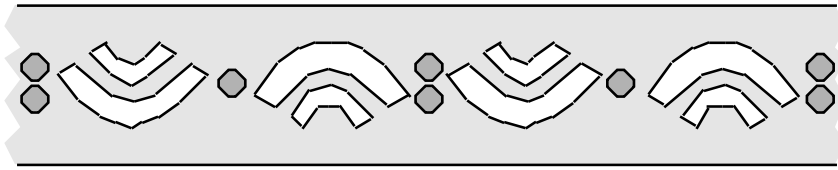
12. How many lines of symmetry does this equiangular hexagon have? _____
 Sketch them on the figure below.



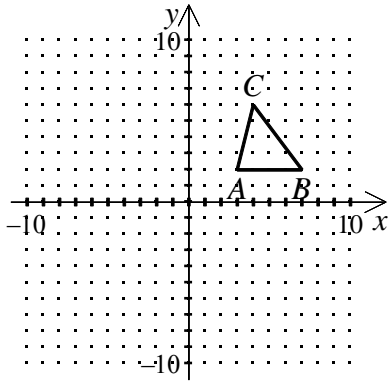
13. Name the transformation. (Preimages are unshaded; images are shaded.) _____



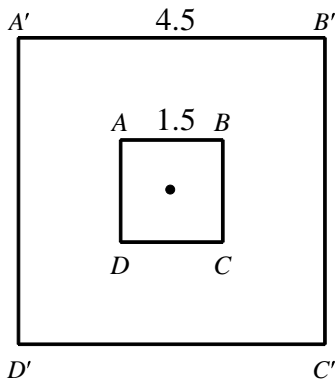
14. Classify the frieze pattern below. _____



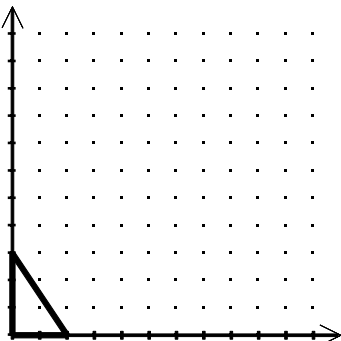
15. Find the image of $\triangle ABC$ after the glide reflection described. Translation: $(x, y) \rightarrow (x - 1, y)$; Reflection: in $y = -1$



16. Give the scale factor for the dilation of the square shown. _____

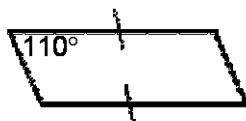


17. Draw the image of the figure for a dilation centered at the origin with scale factor 3.

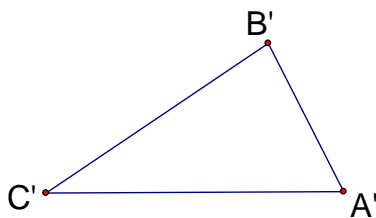
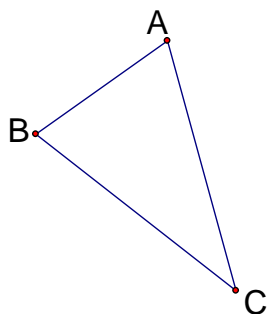


18. Determine whether the shapes can be used to create a tessellation.
If so, sketch the tessellation, and classify it as semiregular or nonregular.

Isosceles Triangle and Parallelogram



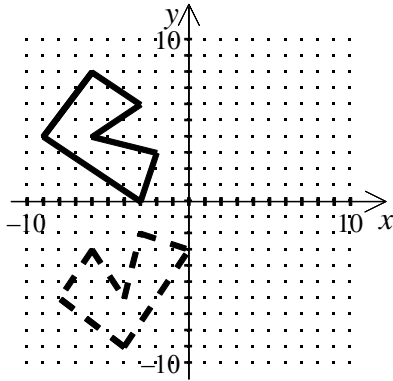
- (SE) 19. Determine the transformation that has mapped $\triangle ABC$ to $\triangle A'B'C'$. _____



- A. dilation
 - B. reflection
 - C. rotation
 - D. translation
- (SE) 20. How many lines of symmetry does a square have?

- A. 0
- B. 1
- C. 2
- D. 4

(SE) 21. The change in position from the solid figure to the dotted figure is best described as a _____.



- A. rotation
- B. translation
- C. reflection
- D. dilation

(PE) 22. Use the graph below to complete the sentence.

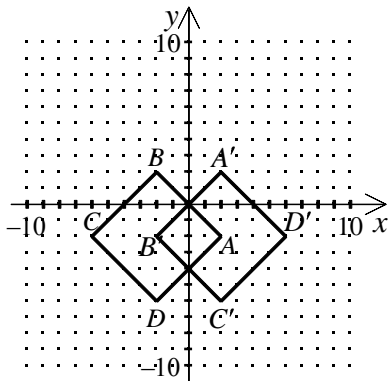
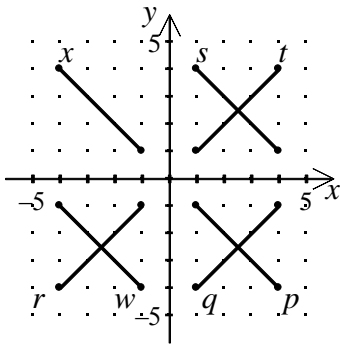


Figure $A'B'C'D'$ is the image of figure $ABCD$ under a rotation _____

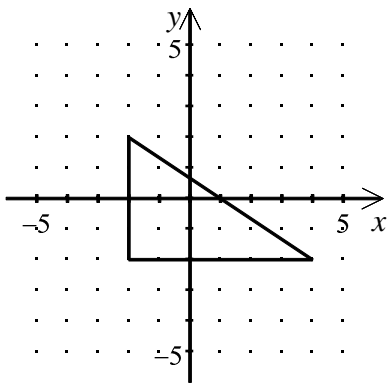
- A. 180° about the origin.
- B. 90° counterclockwise about the origin.
- C. 270° counterclockwise about the origin.
- D. 90° clockwise about the origin.

(PE) 23. Use the figure below. Segment x is reflected in the x -axis, followed by a reflection in the y -axis, followed by another reflection in the x -axis. Its final image is _____.



- A. segment p
- B. segment s
- C. segment x
- D. segment t

(LTMR) 24. For the triangle, find the coordinates of the point of concurrency of the perpendicular bisectors of the sides. _____



(LTMR) 25. How many medians does a triangle have? _____

(LTMR) 26. Using the Triangle Inequality Theorem, solve for all possible values of x . _____

