Name: _____ Date: _____

1. What is the geometric term for fixed distance from the center of a circle to a point on the circle?
   A. Chord
   B. Diameter
   C. Radius
   D. Tangent

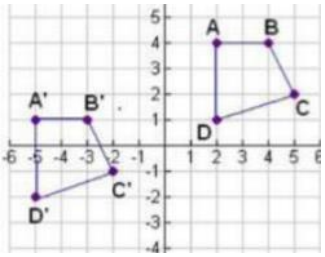
2. Which lines intersect to form right angles?
   A. Perpendicular lines
   B. Parallel lines
   C. Intersecting lines
   D. Coplanar lines

3. Which term defines the set of all points in a plane that are equidistant from a fixed point?
   A. Sphere B. Arc C. Sector D. Circle

4. The vertices of a triangle are P(-3, 8), Q(-6, -4), and R(1, 1). What are the vertices of the image reflected over the x-axis?
   A. $P'(-3,-8), Q'(-6,4), R'(1,-1)$
   B. $P'(3,8), Q'(6,-4), R'(-1,1)$
   C. $P'(8,-3), Q'(-4,-6), R'(1,1)$
   D. $P'(-8,3), Q'(4,6), R'(-1,-1)$

5. If the image of $(x,y) \rightarrow (x-1, y+2)$ is $A'(-5,2)$, what is the pre-image, or A?
   A. $(-4,4)$ B. $(-4,0)$ C. $(-6,4)$ D. $(-6,0)$

6. What is the rule to describe the following translation from the pre-image ABCD to the image A'B'C'D'?
   A. (x,y) *to* $(x-3, y-7)$
   B. (x,y) *to* $(x-7, y-3)$
   C. (x,y) *to* $(x+7, y+3)$
   D. (x,y) *to* $(x+3, y+7)$

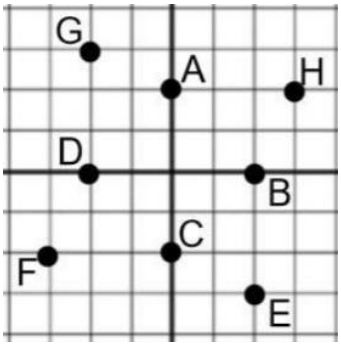


7. If Point $A(-8,5)$ is reflected over the line $y = 2$ and then translated according to the rule $(x,y) \rightarrow (x-1, y-4)$, what quadrant will Point A be in?
   A. Quadrant I
   B. Quadrant II
   C. Quadrant III
   D. Quadrant IV

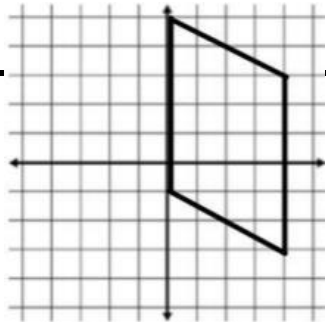
8. Which point in the image of $H(3, 2)$ after the three transformations?

   I. A translation one unit to the left and two units down
   II. A reflection over the y-axis
   III. A 90 degrees counterclockwise rotation about the origin.

   A. Point A
   B. Point B
   C. Point C
   D. Point D



9. A triangle with vertices $A(-1, 4)$, $B(-2,-1)$, *and* $C(3,-1)$ is transformed to a triangle with vertices $A'(3, 12)$, $B'(2,-3)$, *and* $C'(7,-3)$. Which statement is **TRUE**?
   A. The triangles are congruent.
   B. The triangles are similar.
   C. The triangle has been stretched horizontally.
   D. The triangle has been stretched vertically.

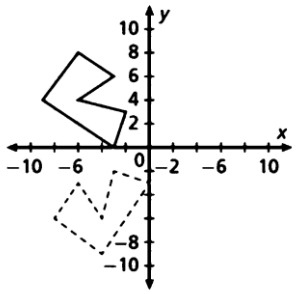


10. Which transformation maps the parallelogram to itself?
   A. A reflection across the line $x = 2$
   B. A reflection across the line $y = 1$
   C. A rotation of 180° about the point $(2,1)$
   D. A rotation of 180° about the point $(0,0)$

11. Parallelogram ABCD has four congruent sides but no right angles. The diagonals of ABCD intersect at point P.
   Which phrase could **NOT** describe a single transformation that maps parallelograms ABCD onto itself?
   A. A rotation of 180 degrees about point P
   B. A rotation of 90 degrees clockwise about point P
   C. A reflection across the line that passes through points A and C
   D. A reflection across the line that passes through points B and D

12. Two shapes "coincide" if one shape can be laid on top of the other and there is an exact match between their points. Which of these shapes will coincide with itself if rotated by 45 degrees?
   A. I and II
   B. II and IV
   C. I and III
   D. III and IV

I. Circle II. Regular Hexagon III. Regular Octagon IV. Square

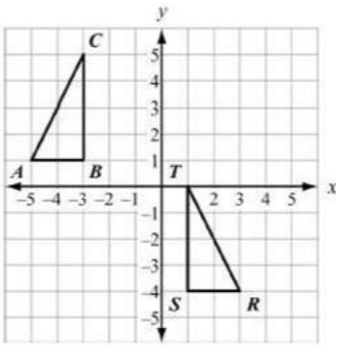


13. Which transformation is represented on the graph?
   A. Dilation
   B. Reflection
   C. Rotation
   D. Translation

14. How are the image and pre-image related to each other after a translation, a reflection, or a rotation?
   A. The image and pre-image are always congruent to each other.
   B. The image and pre-image are always similar to each other.
   C. The image is always larger than the pre-image.
   D. The image is always smaller that the pre-image.

15. If a pizza is sliced into six even sized pieces, what is the angle of rotational symmetry?
   A. 6°
   B. 30°
   C. 60°
   D. 72°

16. Which sequence of transformations maps ΔABC to ΔRST?



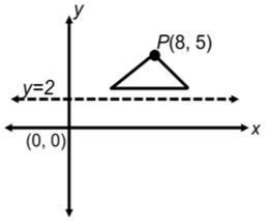
A. Reflect ΔABC across the line $x=-1$.
Then translate the result 5 units up.

B. Reflect ΔABC across the line $x=-1$.
Then translate the result 5 units down.

C. Translate ΔABC 6 units to the right.
Then rotate the result 90° clockwise about $(1,1)$.

D. Translate ΔABC 6 units to the left.
Then rotate the result 90° clockwise about $(1,1)$.

17. If the triangle is reflected across the dashed line, what will be the coordinates of P'?



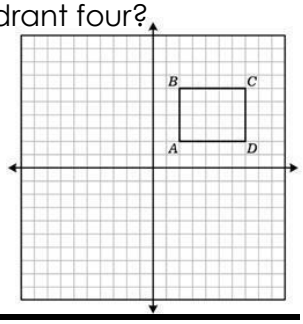
A. $(8,-1)$

B. $(8,-2)$

C. $(8,-3)$

D. $(8,-5)$

18. Which statement would result in figure ABCD being completely in quadrant four?



A. Reflection across $y=4$ followed by a rotation of 180°.

B. Reflection across $y=-x$ followed by a translation right 5 units.

C. Reflection across $y=x$ followed by a rotation of 180°.

D. Reflection across $x=6$ followed by a translation down 7 units.

19. If the graph of a triangle is completely in the second quadrant, which composition of transformations will move the triangle completely into the third quadrant?

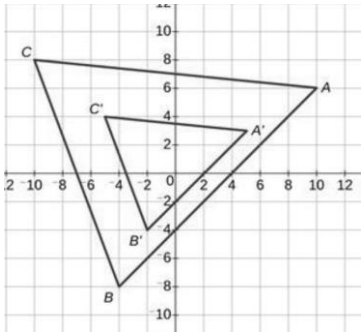
A. Reflect over the x-axis, reflect of the y-axis, and then rotate 90° clockwise

B. Reflect over the y-axis, reflect of the x-axis, and then rotate 90° counterclockwise

C. Rotate 90° counterclockwise, reflect over the line $y=-x$, and then rotate 90° clockwise.

D. Rotate 180°, reflect over the line $y=x$, and then rotate 90° clockwise

20. Which sequence of transformations could be used to carry ΔABC onto $\Delta A'B'C'$?



A. Dilation by a scale factor of 2 with the center of dilation at point A.

B. Dilation by a scale factor of 2 with the center of dilation at the origin.

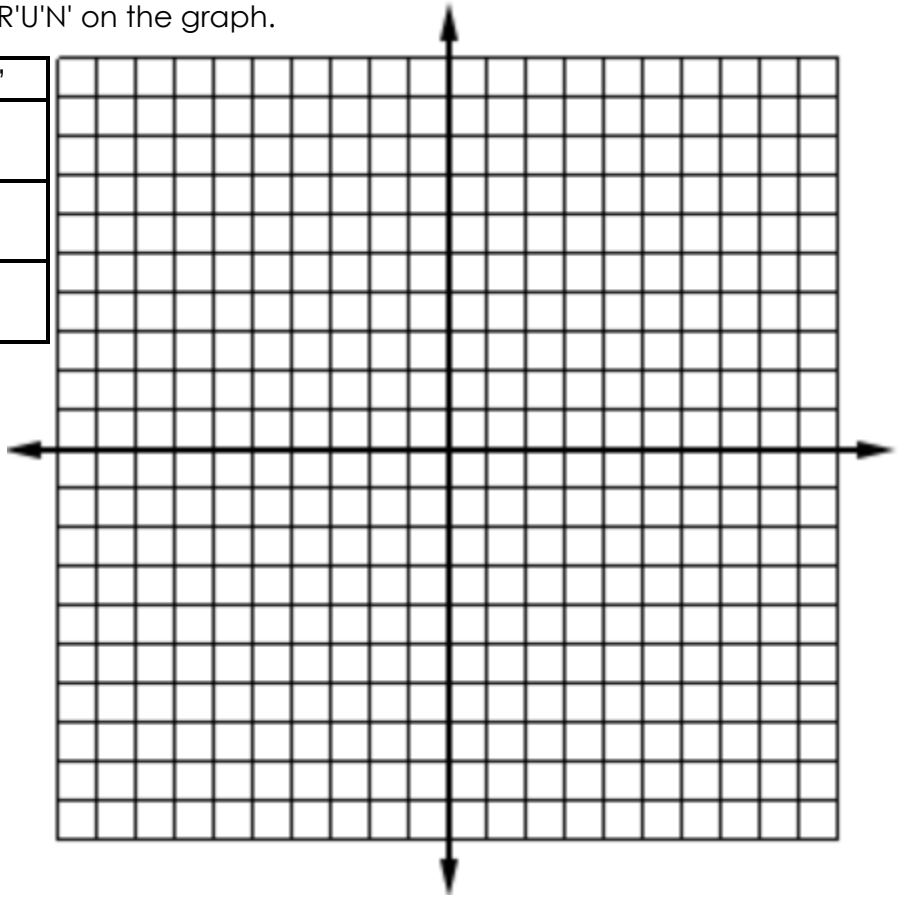
C. Dilation by a scale factor of 0.5 with the center of dilation at point A.

D. Dilation by a scale factor of 0.5 with the center of dilation at the origin.

21. The table shows the coordinates of triangle RUN and the coordinates of R' in triangle R'U'N'. Triangle R'U'N' is a dilation of triangle RUN. (NOTE: Your teacher will score your response to this question using a 4 point rubric.)

- **Part A** Complete the table for the coordinates of point U' and point N'. Graph triangle RUN and triangle R'U'N' on the graph.

Triangle RUN		Triangle R'U'N'	
R	$(3,6)$	R'	$(1,2)$
U	$(-9,0)$	U'	
N	$(6,-6)$	N'	



- **Part B** On the graph, draw and label triangle R''U''N'' after a translation of triangle R'U'N' using the rule (x, y) to (x - 4, y + 3).

- **Part C** State which figures are congruent and explain why they are congruent.

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- **Part D** Write one new rule to transform triangle RUN into triangle R''U''N''.

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