G.G.54: Rotations: Define, investigate, justify, and apply isometries in the plane (rotations, reflections, translations, glide reflections)

1 If the letter P is rotated 180 degrees, which is the resulting figure?
1) d
2) p
3) q
4) b

2 What are the coordinates of A', the image of $A(-3,4)$, after a rotation of 180º about the origin?
1) $(4,-3)$
2) $(-4,-3)$
3) $(3,4)$
4) $(3,-4)$

3 If point $(5,2)$ is rotated counterclockwise 90° about the origin, its image will be point
1) $(2,5)$
2) $(2,-5)$
3) $(-2,5)$
4) $(-5,-2)$

4 What are the coordinates of M', the image of $M(2,4)$, after a counterclockwise rotation of 90º about the origin?
1) $(-2,4)$
2) $(-2,-4)$
3) $(-4,2)$
4) $(-4,-2)$

5 What is the image of point $(8,-4)$ under the rotation $R_{90°}$ about the origin?
1) $(8,4)$
2) $(4,8)$
3) $(-4,8)$
4) $(-4,-8)$

6 The transformation $R_{90°}$ maps point $(5,3)$ onto the point whose coordinates are
1) $(5,-3)$
2) $(3,-5)$
3) $(3,5)$
4) $(-3,5)$

7 What is the image of $A(5,2)$ under $R_{90°}$?
1) $(-5,2)$
2) $(5,-2)$
3) $(2,5)$
4) $(-2,5)$

8 The coordinates of point P are $(7,1)$. What are the coordinates of the image of P after $R_{90°}$ about the origin?
1) $(1,7)$
2) $(-7,-1)$
3) $(1,-7)$
4) $(-1,7)$

9 What are the coordinates of the image of $P(-2,5)$ after a clockwise rotation of 90º about the origin?
1) $(-5,-2)$
2) $(-2,-5)$
3) $(2,5)$
4) $(5,2)$

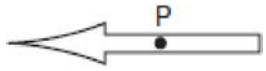
Name: _____

10 What are the coordinates of the image of $(2, -5)$ after a counterclockwise rotation of 90º about the origin?

1) $(-2, 5)$
2) $(2, 5)$
3) $(-5, -2)$
4) $(5, 2)$

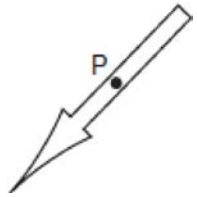
11 The accompanying diagram shows the starting position of the spinner on a board game.

How does this spinner appear after a 270° counterclockwise rotation about point P?

1) 

2) 

3) 

4) 

12 What is the image of the point $(-3, -6)$ on rotation of 90° about the origin?

13 What is the image of the point $(2, -3)$ under a clockwise rotation of 90° ($R_{-90°}$) about the origin?

14 The point $(-2, 1)$ is rotated 180º about the origin in a clockwise direction. What are the coordinates of its image?

15 What is the image of $R_{90°}(1, 2)$?

16 Write the coordinates of P', the image of $P(5, -1)$ after a clockwise rotation of 180° about the origin.

17 What is the image of $(5, 1)$ under a counterclockwise rotation of 90°?

18 The point $(-3, 4)$ is rotated 180º about the origin in a counterclockwise direction. What are the coordinates of its image?

19 What is the image of $(6, 5)$ under a counterclockwise rotation of 180°?

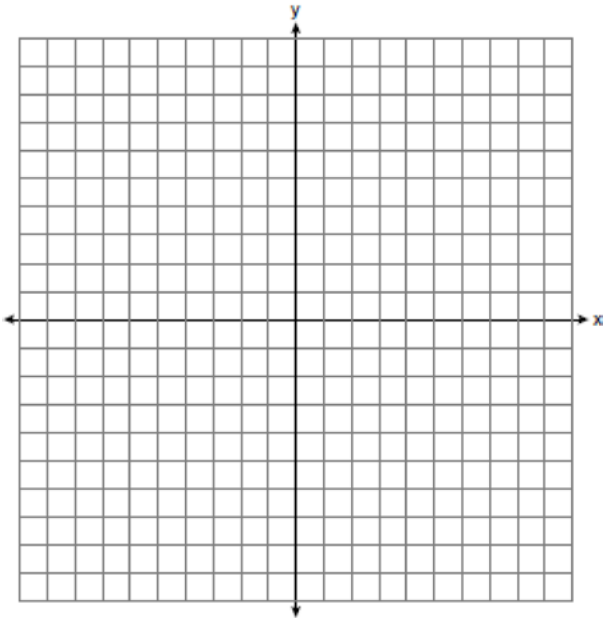
20 Point A is rotated 180º in a counterclockwise direction about the origin. If the coordinates of A are $(-1, 3)$, what are the coordinates of A', its image?

21 If point $P(3, -2)$ is rotated 90° about the origin, what is the image of P?

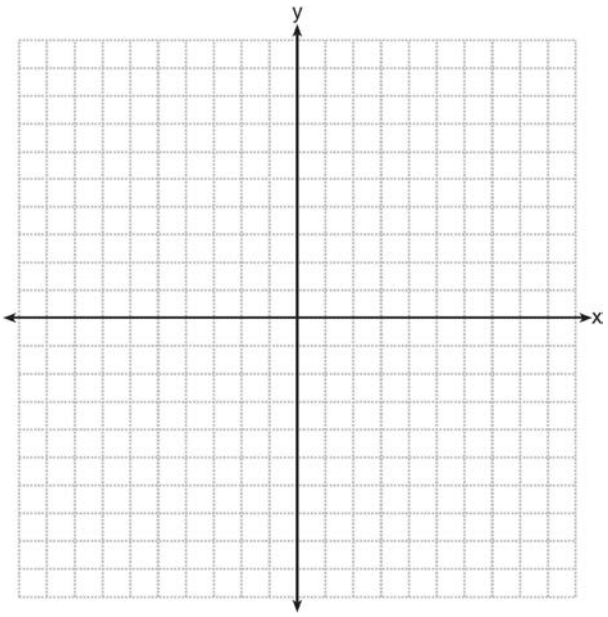
Name: _____

22 The coordinates of the endpoints of $\overline{BC}$ are $B(5,1)$ and $C(-3,-2)$. Under the transformation R_{90}, the image of $\overline{BC}$ is $\overline{B'C'}$. State the coordinates of points B' and C'.

23 The coordinates of the vertices of ΔRST are $R(-2,3)$, $S(4,4)$, and $T(2,-2)$. Triangle $R'S'T'$ is the image of ΔRST after a rotation of 90° about the origin. State the coordinates of the vertices of $\Delta R'S'T'$. [The use of the set of axes below is optional.]



24 The coordinates of the vertices of ΔABC are $A(1,2)$, $B(-4,3)$, and $C(-3,-5)$. State the coordinates of $\Delta A'B'C'$, the image of ΔABC after a rotation of 90° about the origin. [The use of the set of axes below is optional.]



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Answer Section

1 ANS: 1 REF: 068517siii
2 ANS: 4
$(x, y) \rightarrow (-x, -y)$

REF: 061304ge
3 ANS: 3 REF: 060809b
4 ANS: 3 REF: 088534siii
5 ANS: 2 REF: 010435siii
6 ANS: 4 REF: 089421siii
7 ANS: 4 REF: 019727siii
8 ANS: 4 REF: 011421ge
9 ANS: 4 REF: 019934siii
10 ANS: 4 REF: 080328siii
11 ANS: 3 REF: 080721a
12 ANS:
$(6, -3)$

REF: 068016siii
13 ANS:
$(-3, -2)$

REF: 068109siii
14 ANS:
$(2, -1)$

REF: 068703siii
15 ANS:
$(-2, 1)$

REF: 089308siii
16 ANS:
$(-5, 1)$

REF: 018905siii
17 ANS:
$(-1, 5)$

REF: 068910siii
18 ANS:
$(3, -4)$

REF: 069605siii

19 ANS:
$(-6,-5)$

REF: 089812siii

20 ANS:
$(1,-3)$

REF: 089908siii

21 ANS:
$(2,3)$

REF: 080109siii

22 ANS:
$(x,y) \rightarrow (-y,x)$

$B(5,1) \rightarrow B'(-1,5)$

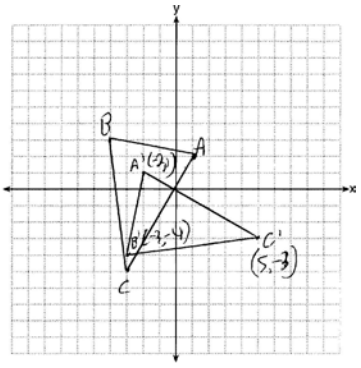
$C(-3,-2) \rightarrow C'(2,-3)$

REF: 061429ge

23 ANS:
$R'(-3,-2)$, $S'(-4,4)$, and $T'(2,2)$.

REF: 011232ge

24 ANS:



$A'(-2,1)$, $B'(-3,-4)$, and $C'(5,-3)$

REF: 081230ge