Name \_\_\_\_\_ Mr. Schlansky Date \_\_\_\_\_ Geometry



## **Transformations Review Sheet**

If △A'B'C' is the image of △ABC, under which transformation will the triangles *not* be congruent?
reflection over the *x*-axis
dilation centered at the origin with scale factor 2
translation to the left 5 and down 4
rotation of 270° counterclockwise about the origin

2. Under which transformation would  $\triangle A'B'C'$ , the image of  $\triangle ABC$ , not be congruent to  $\triangle ABC$ ?

- 1) reflection through the point (2,-1)
- 2) rotation of  $90^{\circ}$  clockwise about the origin
- 3) translation of 3 units right and 2 units down
- 4) dilation with a scale factor of 2 centered at the origin

3. What is the image of  $\Delta LMN$  with vertices L(2,-3), M(5,1) and N(7,3) after a translation 2 units to the left and 4 units up?



4. Graph the image of quadrilateral ADEF with vertices A(4,-1), D(8,-2), E(6,3), and F(2,7) after a translation 5 units to the left?



5. In the diagram below,  $\triangle ABC$  is graphed. Graph and state the coordinates of the image of  $\triangle ABC$  after a reflection through (-2,3) and label it  $\triangle A'B'C'$ .



6. Triangle *RST* is graphed on the set of axes below. Graph the image of  $\Delta RST$  after a point reflection through (0,2) and label it  $\Delta R'S'T'$ .



7. On the grid below, graph and label triangle *ABC* with vertices A(3,1), B(0,4), and C(-5,3). On the same grid, graph and label triangle A'B'C', the image of *ABC* after a reflection over y = -1.



8. Triangle *ABC* has coordinates A(2, 1), B(6,1), C(5,3). What is the image of this triangle after a reflection over the line x=4. Graph both the image and the pre image.



9. Triangle A'B'C' is the image of triangle *ABC* after a translation of 2 units to the right and 3 units up. Is triangle *ABC* congruent to triangle A'B'C'? Explain why.

10. After a reflection over a line,  $\Delta A'B'C'$  is the image of  $\Delta ABC$ . Explain why triangle *ABC* is congruent to triangle  $\Delta A'B'C'$ .

11. After a counterclockwise rotation about point X, scalene triangle ABC maps onto  $\triangle RST$ , as shown in the diagram below.

Which statement must be true?

- 1)  $\angle A \cong \angle R$
- 2)  $\angle A \cong \angle S$
- 3)  $\overline{CB} \cong \overline{TR}$
- 4)  $\overline{CA} \cong \overline{TS}$



12. In the diagram below, a sequence of rigid motions maps ABCD onto JKLM.

Which of the following statements must be true?





13. Which of the following sequences of rigid motions would map  $\Delta GLA$  onto  $\Delta JET$ ?

1) point reflection through (0.5, 0.5) followed by a translation

11 right and 1 down

2) reflection over the y-axis followed by a translation right 1 and down 1

3) rotation of 90 degrees clockwise centered at the origin followed by a translation right 1 and up 1

4) reflection over x=1 followed by a reflection over the x-axis



14. Identify which sequence of transformations could map pentagon ABCDE onto pentagon A"B"C"D"E", as shown below.



- 1) dilation followed by a rotation
- 2) translation followed by a rotation
- 3) line reflection followed by a translation
- 4) line reflection followed by a line reflection

15. On the set of axes below,  $\triangle ABC \cong \triangle DEF$ . Describe a sequence of rigid motions that maps  $\triangle ABC$  onto  $\triangle DEF$ .



16. On the set of axes below, pentagon ABCDE is congruent to A''B''C''D''E''. Describe a sequence of rigid motions that maps pentagon ABCDE onto A''B''C''D''E''.



17. Quadrilateral *DEAR* and its image, quadrilateral D'E'A'R', are graphed on the set of axes below. Describe a sequence of transformations that maps quadrilateral *DEAR* onto quadrilateral D'E'A'R'.



18. Quadrilaterals *BIKE* and *GOLF* are graphed on the set of axes below. Describe a sequence of transformations that maps quadrilateral *BIKE* onto quadrilateral *GOLF*.



19. Triangle *ABC* is graphed on the set of axes below.

Which transformation maps  $\triangle ABC$  onto itself?

- 1) Reflection over the x-axis
- 2) Reflection over x = 2
- 3) Reflection over y = 2
- 4) Reflection over x = -2



20. Which transformation does not map the circle in the diagram below onto itself?

- 1) Rotation of 90 centered at the origin
- 2) Reflection over the line x = -3
- 3) Rotation of 90 centered at (-3, -4)
- 4) Reflection over the line y = -4



21. A regular octagon is rotated n degrees about its center, carrying the octagon onto itself. The value of n could be

22. Which of the following rotations would not map a regular pentagon onto itself?

(1) 144 (3) 216 (2) 120 (4) 720

## Spiral Review

## **Complex Triangle Problems:**

- 1) The three angles of a triangle add to equal 180°. Look for triangles.
- 2) Linear pairs add to 180°. Look for linear pairs.
- 3) Isosceles triangle has congruent angles opposite congruent sides (given congruent sides).
- 4) Equilateral triangle has angles 60, 60, 60 (given equilateral triangle).
- 5) An angle bisector cuts an angle into two congruent halves (given bisected angles).
- 6) Use parallel lines cut by a transversal (extend and follow the transversal, fill in 8 angles.)

23. In the diagram below of  $\triangle ACD$ , *B* is a point on  $\overline{AC}$  such that  $\triangle ADB$  is an equilateral triangle, and  $\triangle DBC$  is an isosceles triangle with  $\overline{DB} \cong \overline{BC}$ . Find  $\mathbb{m} \angle C$ .



24. Given  $\triangle ABC$  with  $m \angle B = 62^\circ$  and side  $\overline{AC}$  extended to *D*, as shown below.

