# **Transformations Test**

Multiple Choice (1 point each)

*Directions:* Circle the correct response for each question. Make sure your answer is clearly marked.



- 1. Which of these describes the transformation of the triangle?
  - a. Reflection over the x-axis
  - b. Reflection over the y-axis
  - c. Rotation of 90° clockwise about the origin
  - d. Rotation of 180° clockwise about the origin
- Which transformation will result in an image which is similar, <u>but not</u> <u>congruent</u>, to the pre-image?
  - f. dilation
  - g. glide reflection
  - h. rotation
  - j. translation



- 3. Which of these transformations describe the footprints shown above?
  - a. dilation
  - b. glide reflection
  - c. reflection
  - d. rotation
- A figure is located <u>entirely</u> in the third quadrant. If it is reflected over the y-axis, in which quadrant will its image lie?
  - f. first
  - g. second
  - h. third
  - j. fourth



- Triangle QRS is translated four units to the left and two units up. Which ordered pair is a vertex of the translated image?
  - a. (-1,3)
  - b. (1,-3)
  - c. (1,3)
  - d. (3,1)



- 6. Which of these can transformations occurs when the fan blades turn?
  - f. dilation
  - g. reflection
  - h. rotation
  - j. translation



- 7. Which of the following describes the transformation shown here?
  - a. dilation with a scale factor of 2
  - b. rotation of 90° counterclockwise
  - c. reflection over the x-axis
  - d. translation up 2 units
- Triangle JKL has vertices J(2,4), K(3,1), and L(3,3). A translation maps the point J to J'(3,3). What are the coordinates of K'?
  - f. (-3,1)
  - g. (2,2)
  - h. (3,2)
  - j. (4,0)
- 9. The marching band enters the gym and marches across the gym <u>without</u> turning. Which of these describes the transformation?
  - a. dilation
  - b. reflection
  - c. rotation
  - d. translation

- 10. Which of the following transformations has the same result as a rotation of 90° clockwise?
  - f. dilation of scale factor of 9
  - g. reflection about a horizontal line
  - h. rotation of 270° counterclockwise
  - j. translation down and to the right
- 11. Which transformation best describes the image of an object viewed through a microscope?
  - a. dilation
  - b. reflection
  - c. rotation
  - d. translation
- 12. Which of the following describes the movement of a figure that is translated according to the rule below?

 $(x,y) \to (x-7,y+1)$ 

- f. down 7 units and right 1 unit
- g. left 7 units and up 1 unit
- h. right 7 units and down 1 unit
- j. up 7 units and left 1 unit



- 13. Which of these transformations could produce the image shown?
  - a. dilation
  - b. glide reflection
  - c. rotation
  - d. translation
- 14. A rectangular photo with dimensions of 1.5 inches wide by 2 inches long is enlarged to a length of 8 inches. What is the width of the enlarged print?
  - f. 4 inches
  - g. 6 inches
  - h. 8 inches
  - j. 10 inches



- 15. Which of these transformations is <u>not</u> shown in the decorative square above?
  - a. dilation
  - b. reflection
  - c. rotation
  - d. translation
- 16. Which of these transformations describes an image in a mirror?
  - f. dilation
  - g. glide reflection
  - h. reflection
  - j. translation

- 17. The vertex of a figure is located at (2,4). The figure is rotated and the image of the vertex is located at (-4,-2). Which of these describes the transformation?
  - a. reflection over the x-axis
  - b. reflection over the y-axis
  - c. rotation of 180° counterclockwise
  - d. rotation of 270° counterclockwise
- 18. Which of these transformations describes sliding a box across the floor?
  - f. dilation
  - g. reflection
  - h. rotation
  - j. translation

Name \_\_\_\_\_

## Matching (1 point each)

*Directions:* Write the letter of the description for each transformation shown. Each letter may only be used once. Some letters will not be used.



- a. Dilation, scale factor less than 1
- b. Dilation, scale factor of 1
- c. Dilation, scale factor greater than 1
- d. Glide reflection
- e. Reflection over a horizontal line
- f. Reflection over a vertical line
- g. Rotation of 90° clockwise
- h. Rotation of 180° counterclockwise
- j. Rotation of 270° clockwise
- k. Translation left and up
- I. Translation right and up

#### Extended Response



23. **2** *points* On the photo to the left, identify one transformation. Circle and label both the preimage and the image. What type of transformation do you see?

24. **2** *points.* On the grid provided to the right, graph the image of the rotation of the polygon 180° counter-clockwise.



### 25. Translation of a circle



a. **1 point.** On the grid provided, translate Circle A according to the following rule.

$$(x, y) \rightarrow (x + 3, y)$$

b. **1 point.** Label the center of the image A'. Identify the center of the image.

A'\_\_\_\_\_



#### 26.Reflection of a trapezoid across intersecting lines

- a. **1** point. On the grid provided, reflect trapezoid ABCD over the <u>v-axis</u>. Label the corresponding vertices of the image A', B', C' and D' respectively.
- b. **1** point. Now, reflect this image, trapezoid A'B'C'D', over the <u>x-axis</u>. Label the corresponding vertices A", B", C" and D", respectively.
- c. *1 point.* Identify the vertices of the images in the table below.

Pre-image		Reflection over the y-axis		Reflection over the x-axis	
Vertex	Ordered Pair	Vertex	Ordered Pair	Vertex	Ordered Pair
А	(2,3)	Α'		Α"	
В	(4,1)	В'		В"	
С	(6,2)	C'		C''	
D	(3,5)	D'		D"	

d. **2** points. Which other single transformation could map trapezoid ABCD to trapezoid A"B"C"D"? (Identify the type of transformation and any points, lines, directions or measurements necessary to completely describe the transformation.)