Multiple Choice Practice
Transformations
Geometry Level

Geometry Index | Regents Exam Prep Center

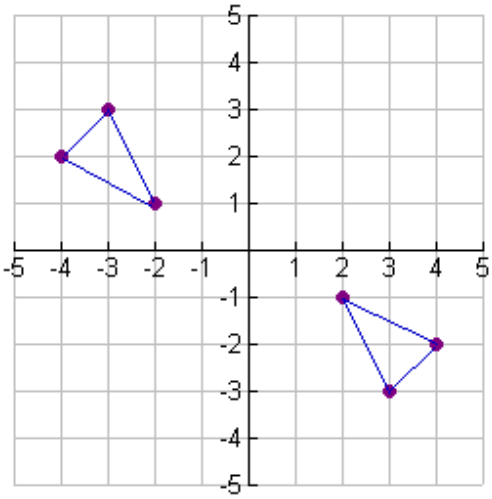
Also available in **Hardcopy** (.pdf):
Transformations

Directions: *Choose the best answer. Answer ALL questions (or only a few at a time), then use the BUTTON at the BOTTOM of the page to check your answers. If you are told that an answer is incorrect, go back and redo that question and CHECK ANSWERS again. You may CHECK ANSWERS at any time. You may use your graphing calculator when working on these problems.*

1. If a reflection in the line $y = -x$ occurs, then the rule for this reflection is:

- [1] $(x, y) \rightarrow (x, -y)$
- [2] $(x, y) \rightarrow (-x, y)$
- [3] $(x, y) \rightarrow (y, x)$
- [4] $(x, y) \rightarrow (-y, -x)$

2. Which of the following transformations is illustrated by the graph at the right?



- [1] dilation
- [2] reflection in $y = x$
- [3] translation
- [4] reflection in the origin

3. Under the translation $T_{3,2}$, the point (2,5) becomes

- [1] (3,2)
- [2] (6,10)
- [3] (5,7)
- [4] (4,8)

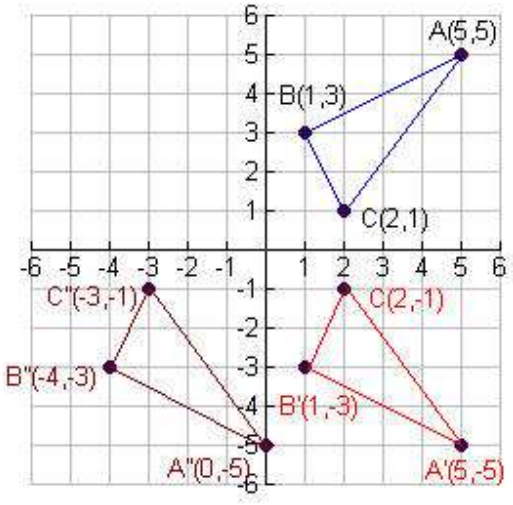
4. Which of the following capital letters (if written simply) has at least one line of symmetry?

○ [1] F ○ [2] R ◉ [3] O ○ [4] L

5. Which of the following rules is the composition of a dilation of scale factor 2 following a translation of 3 units to the right?

○ [1] $D_2 \circ T_{3,0}(x, y) = (2x + 3, 2y)$
◉ [2] $D_2 \circ T_{3,0}(x, y) = (2x + 6, 2y)$
○ [3] $T_{3,0} \circ D_2(x, y) = (2x + 3, 2y)$
○ [4] $T_{3,0} \circ D_2(x, y) = (2x + 6, 2y)$

6. Which of the following descriptions (pertaining to the graph at the right) is true?



○ [1] $\Delta A"B"C"$ is a translation of ΔABC

◉ [2] $\Delta A"B"C"$ is a glide reflection of ΔABC

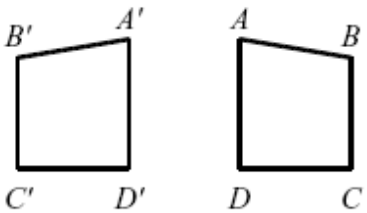
○ [3] $\Delta A"B"C"$ is a reflection in the origin of ΔABC

○ [4] $\Delta A"B"C"$ is a dilation scale factor 2 of ΔABC

7. Which of the following transformations creates a figure that is similar (but not congruent) to the original figure? I. translation II. rotation III. dilation

○ [1] I only ○ [2] II only ◉ [3] III only ○ [4] II and III

8. Regarding the transformation at the right, do the figures have the *same* or *opposite* orientation?



○ [1] same ◉ [2] opposite

9. The image of (-2,6) after a dilation with respect to the origin is (-10,30). What is the constant of the dilation?

(•) [1] 5 ( ) [2] 8 ( ) [3] 10 ( ) [4] -8

10. What are the coordinates of point T', the image of point $T(-2,5)$ after a reflection in the origin?

( ) [1] (2,5) (•) [2] (2,-5) ( ) [3] (-2,-5) ( ) [4] (5,-2)

11. What is the image of point (4,-2) after a dilation of 3?

(•) [1] (12, -6) ( ) [2] (7, 1) ( ) [3] (1, -5) ( ) [4] (4/3, -2/3)

12. Point $P'(-6,-4)$ is the image of point $P(-2,3)$ under translation T. What is the image of (5,-1) under the same translation?

( ) [1] (9,6) ( ) [2] (-1,-5) (•) [3] (1,-8) ( ) [4] (3, 2)

13. A dilation maps (6,10) to (3,5). What are the coordinates of the image of (12,4) under the same dilation?

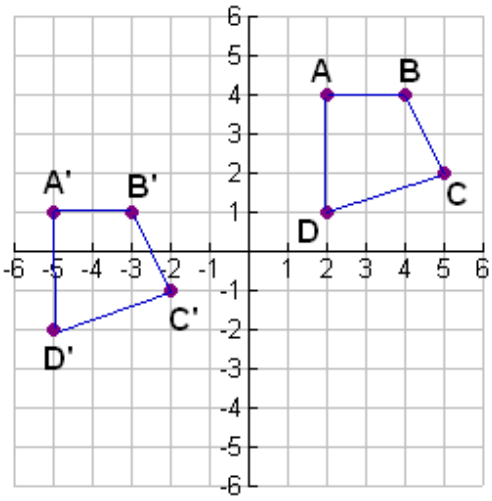
(•) [1] (6,2) ( ) [2] (9,1) ( ) [3] (2,6) ( ) [4] (9,-1)

14. A translation maps (x, y) to $(x - 5, y + 3)$. In which quadrant does the point (-3,-2) lie under the same translation?

( ) [1] I (•) [2] II ( ) [3] III ( ) [4] IV

15. Which of the following descriptions does **NOT** pertain to the transformation shown at the right?

( ) [1] $T_{(-7,-3)}$
( ) [2] $(x, y) \rightarrow (x - 7, y - 3)$
(•) [3] 7 units down and 3 units left
( ) [4] $\bar{v} = \langle -7, -3 \rangle$



16. Which of the following is **NOT** invariant under a dilation?

- [1] angle measure
- [2] orientation
- [3] distance
- [4] parallelism

17. A figure is translated $\langle 3, -3 \rangle$. Which translation will move the image back to its original position?

[1] $\langle 3, -3 \rangle$ [2] $\langle -3, 3 \rangle$ [3] $\langle -3, 0 \rangle$ [4] $\langle 0, 3 \rangle$

18. A positive angle of rotation turns a figure

[1] clockwise [2] counterclockwise

19. The composition $r_{y=x} \circ r_{y-axis}$ can also be expressed as which of the following single transformation?

- [1] r_{x-axis}
- [2] $T_{(0,-2)}$
- [3] $D_{0.5}$
- [4] $R_{270°}$

20. An isometry is a transformation of the plane that preserves length.

◉ [1] TRUE ○ [2] FALSE

Check Answers

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