

Classroom Exercises

The symbol 2^{-1} stands for the multiplicative inverse of 2, or $\frac{1}{2}$. Give the value of each of the following.

1. 3^{-1}

2. 7^{-1}

3. $(\frac{4}{5})^{-1}$

4. $(2^{-1})^{-1}$

The translation T maps all points five units to the right. Describe each of the following transformations.

5. T^2

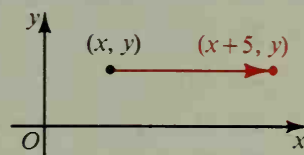
6. T^3

7. T^{-1}

8. T^{-2}

9. $T \circ T^{-1}$

10. $(T^{-1})^{-1}$



The rotation \mathcal{R} maps all points 120° about G , the center of equilateral $\triangle ABC$. Give the image of A under each rotation.

11. \mathcal{R}

12. \mathcal{R}^2

13. \mathcal{R}^3

14. \mathcal{R}^6

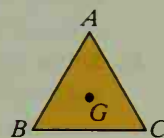
15. \mathcal{R}^{-1}

16. \mathcal{R}^{-2}

17. $\mathcal{R}^2 \circ \mathcal{R}^{-2}$

18. $\mathcal{R}^2 \circ \mathcal{R}^{-3}$

19. \mathcal{R}^{100}



20. What number is the identity for multiplication?

21. The product of any number t and the identity for multiplication is $\underline{\hspace{1cm}}$.

22. The product of any transformation T and the identity is $\underline{\hspace{1cm}}$.

23. State the inverse of each transformation.

a. R_I

b. $\mathcal{R}_{O, 30}$

c. $T: (x, y) \rightarrow (x - 4, y + 1)$

d. $D_{O, -1}$

24. Name an important difference between products of numbers and products of transformations.

Written Exercises

Give the value of each of the following.

A 1. 4^{-1}

2. 9^{-1}

3. $(\frac{2}{3})^{-1}$

4. $(5^{-1})^{-1}$

The rotation \mathcal{R} maps all points 90° about O , the center of square $ABCD$. Give the image of A under each rotation.

5. \mathcal{R}^2

6. \mathcal{R}^3

7. \mathcal{R}^4

8. \mathcal{R}^{-1}

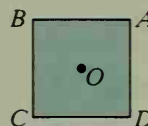
9. \mathcal{R}^{-2}

10. \mathcal{R}^{-3}

11. $\mathcal{R}^{-3} \circ \mathcal{R}^3$

12. \mathcal{R}^5

13. \mathcal{R}^{50}



Complete.

14. By definition, the identity mapping I maps every point P to $\underline{\hspace{1cm}}$.

15. H_O^2 is the same as the mapping $\underline{\hspace{1cm}}$.

16. The inverse of H_O is $\underline{\hspace{1cm}}$.

17. H_O^3 is the same as the mapping $\underline{\hspace{1cm}}$.