🔄 Transformations Practice

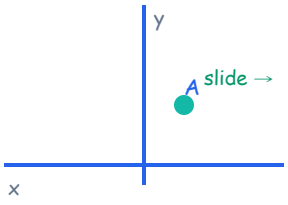
Name: _____ Grade: 8 Date: _____

Transformations change the position, size, or orientation of shapes on the coordinate plane.

Translations slide, Reflections flip, Rotations turn, Dilations resize.
Use the diagrams, try the quizzes, and check your answers below!

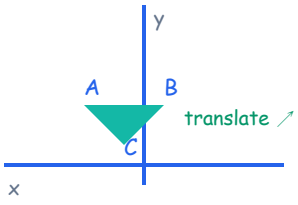
Part 1 · Translations TRANSLATE

1. Move point A(2,3) right 4 units and up 2 units. What are the new coordinates?



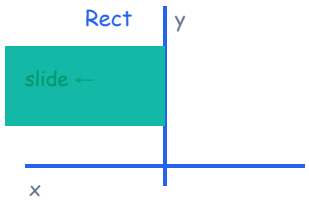
Start: (2,3)

2. Translate triangle with vertices (1,2), (3,2), (2,4) by (−2, +3). What are the new vertices?



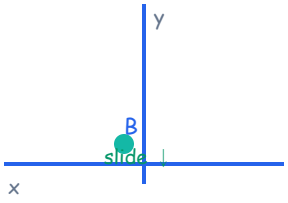
Start: (1,2), (3,2), (2,4)

3. A rectangle at (0,0), (4,0), (4,2), (0,2) is translated left 3 units. What are the new coordinates?



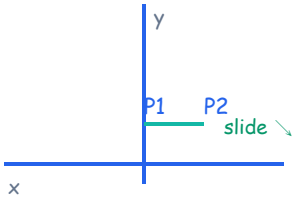
Start: (0,0), (4,0), (4,2), (0,2)

4. Translate point B(−1,5) down 4 units. What are the new coordinates?



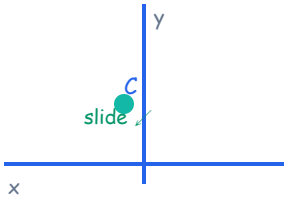
Start: (−1,5)

5. Translate segment from (2,7) to (5,7) by (+1, −2). What are the new endpoints?



Start: (2,7) to (5,7)

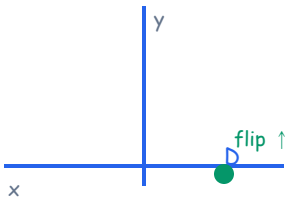
6. Translate point C(6,−3) right 2 units and down 5 units. What are the new coordinates?



Start: (6,−3)

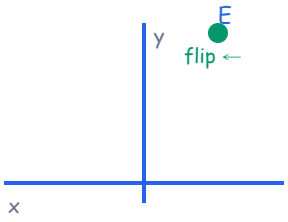
Part 2 · Reflections REFLECT

7. Reflect point D(4,–2) over the x-axis. What are the new coordinates?



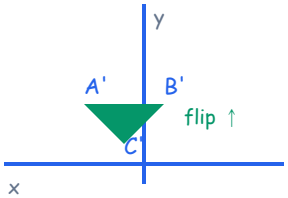
Start: (4,–2)

8. Reflect point E(–3,5) over the y-axis. What are the new coordinates?



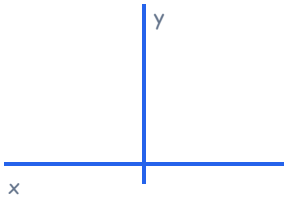
Start: (–3,5)

9. Reflect triangle with vertices (2,1), (4,1), (3,3) over x-axis. What are the new vertices?



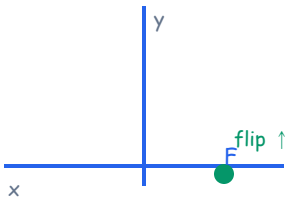
Start: (2,1), (4,1), (3,3)

10. Reflect rectangle at (–2,0), (2,0), (2,3), (–2,3) over y-axis. What are the new coordinates?



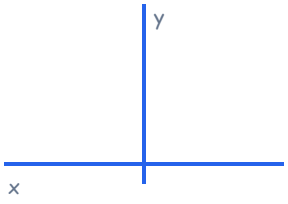
Start: (–2,0), (2,0), (2,3), (–2,3)

11. Reflect point F(5,−6) over x-axis. What are the new coordinates?



Start: (5,−6)

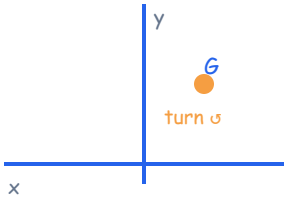
12. Reflect segment from (−4,2) to (−4,5) over y-axis. What are the new endpoints?



Start: (−4,2) to (−4,5)

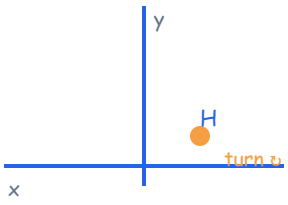
Part 3 · Rotations ROTATE

13. Rotate point G(3,4) 90° counterclockwise about the origin. What are the new coordinates?



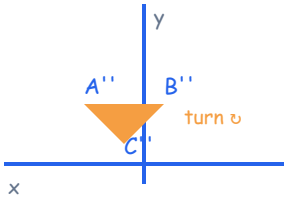
Start: (3,4)

14. Rotate point H(−2,5) 180° about the origin. What are the new coordinates?



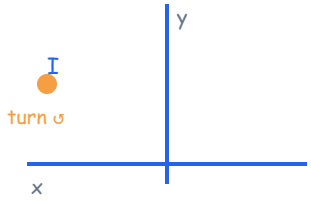
Start: (–2,5)

15. Rotate triangle (1,2), (3,2), (2,4) 90° clockwise about the origin. What are the new vertices?



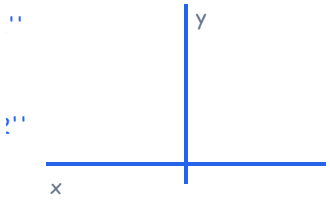
Start: (1,2), (3,2), (2,4)

16. Rotate point I(0,–3) 270° counterclockwise about the origin. What are the new coordinates?



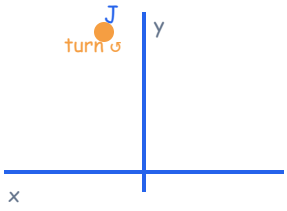
Start: (0,–3)

17. Rotate segment from (2,1) to (2,4) 180° about the origin. What are the new endpoints?



Start: (2,1) to (2,4)

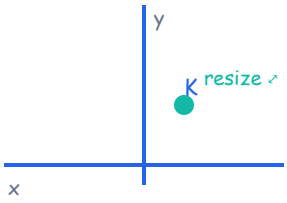
18. Rotate point J(5,–2) 90° counterclockwise about the origin. What are the new coordinates?



Start: (5,−2)

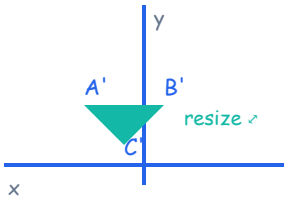
Part 4 · Dilations DILATE

19. Dilate point K(2,3) by scale factor 2 about the origin. What are the new coordinates?



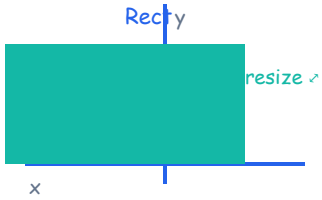
Start: (2,3)

20. Dilate triangle (1,2), (3,2), (2,4) by scale factor 0.5 about the origin. What are the new vertices?



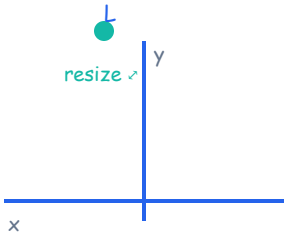
Start: (1,2), (3,2), (2,4)

21. Dilate rectangle at (0,0), (4,0), (4,2), (0,2) by scale factor 3 about the origin. What are the new coordinates?



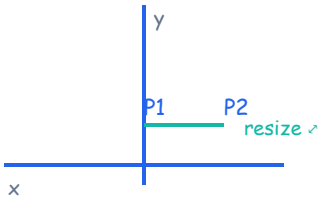
Start: (0,0), (4,0), (4,2), (0,2)

22. Dilate point L(−2,−5) by scale factor 4 about the origin. What are the new coordinates?



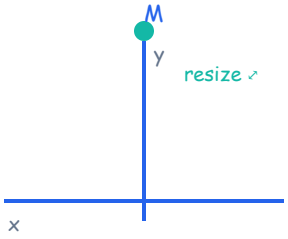
Start: (−2,−5)

23. Dilate segment from (2,7) to (5,7) by scale factor 2 about the origin. What are the new endpoints?



Start: (2,7) to (5,7)

24. Dilate point M(6,−3) by scale factor 0.5 about the origin. What are the new coordinates?



Start: (6,−3)

Part 5 · Real World Practice

REAL WORLD

25. Map Movement

A park entrance is at (3,5). If the map is translated right 4 units and up 2 units, where is the entrance now?

New coordinates?

(7,7) (5,7) (7,5)

RESET

26. Window Reflection
A window at (−4,6) is reflected over the y-axis. Where is it now?
New coordinates?
(−4,6) (4,6) (−4,−6)
RESET

27. Rotating a Sign
A sign at (2,−3) is rotated 90° counterclockwise about the origin. Where is it now?
New coordinates?
(−3,2) (3,2) (−2,−3)
RESET

28. Enlarging a Photo
A photo corner is at (2,−1). If the photo is dilated by scale factor 3 about the origin, where is the corner now?
New coordinates?
(6,−3) (2,−3) (3,−1)
RESET

29. Playground Slide
A slide at (−5,4) is reflected over the x-axis. Where is it now?
New coordinates?
(−5,4) (5,−4) (−5,−4)
RESET

Answer Key

1. (6,5)
2. (−1,5), (1,5), (0,7)
3. (−3,0), (1,0), (1,2), (−3,2)
4. (−1,1)
5. (3,5), (6,5)
6. (8,−8)
7. (4,2)
8. (3,−5)
9. (2,−1), (4,−1), (3,−3)
10. (2,0), (−2,0), (−2,3), (2,3)
11. (5,6)
12. (4,2), (4,5)
13. (−4,3)
14. (2,−5)
15. (2,−3), (3,−1), (4,−2)
16. (−3,0)
17. (−2,−1), (−2,−4)
18. (−2,5)
19. (4,6)
20. (0.5,1), (1.5,1), (1,2)
21. (0,0), (12,0), (12,6), (0,6)
22. (−8,−20)
23. (4,14), (10,14)
24. (3,−1.5)
25. (7,7)
26. (4,6)
27. (3,2)
28. (6,−3)
29. (−5,−4)

Each question uses transformations in a real-life scenario. Encourage students to sketch diagrams before solving.