Geometry

4.8 Perform Congruence Transformations

# Transformation

geometric figure

changes

moves

* Transformation is an operation that \_\_\_\_\_\_\_\_\_\_\_\_ or \_\_\_\_\_\_\_\_\_\_\_\_\_\_ a \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ to produce a new \_\_\_\_\_\_\_\_\_\_\_\_\_\_

image

Original figure

figure

* \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ 🡪 \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

# Types of Transformations

\_\_\_\_\_\_\_\_\_\_\_\_\_\_

\_\_\_\_\_\_\_\_\_\_\_\_\_\_

\_\_\_\_\_\_\_\_\_\_\_\_\_\_

translation

rotation

reflection

Reflection

Translation

Rotation

Name the type of transformation shown.



Reflection

# Congruence Transformation

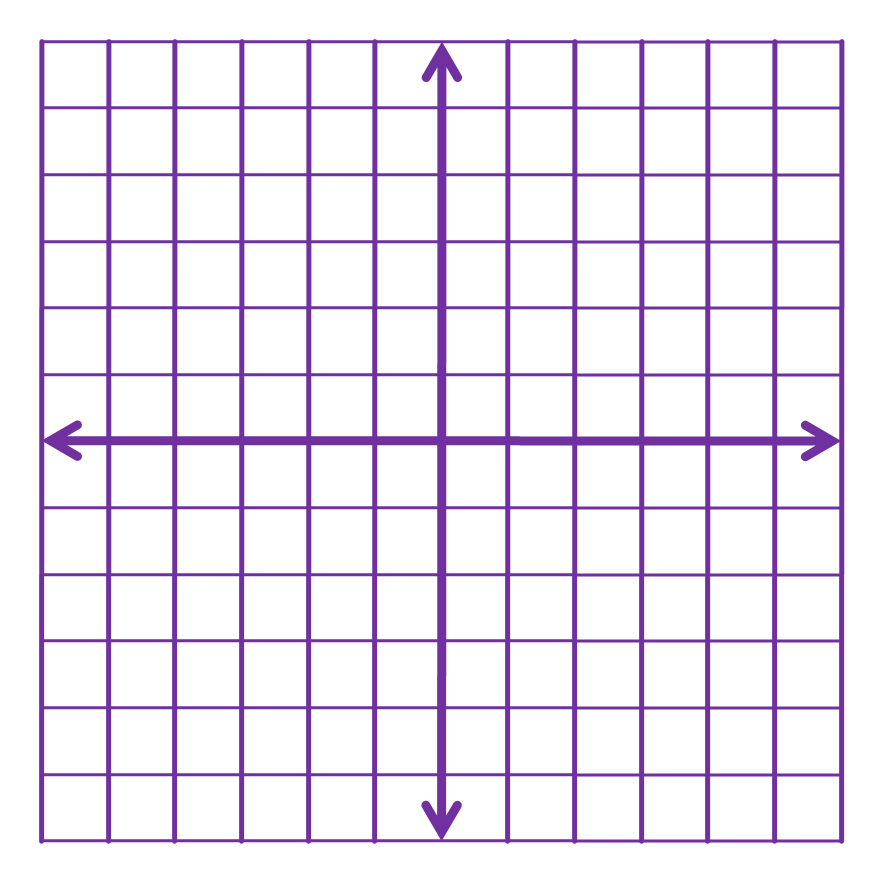
same

size

shape

* The \_\_\_\_\_\_\_\_\_ and \_\_\_\_\_\_\_\_\_ remain the \_\_\_\_\_\_\_\_\_
  + Translations
  + Rotations
  + Reflections

## Translations



a

b

* Can describe mathematically

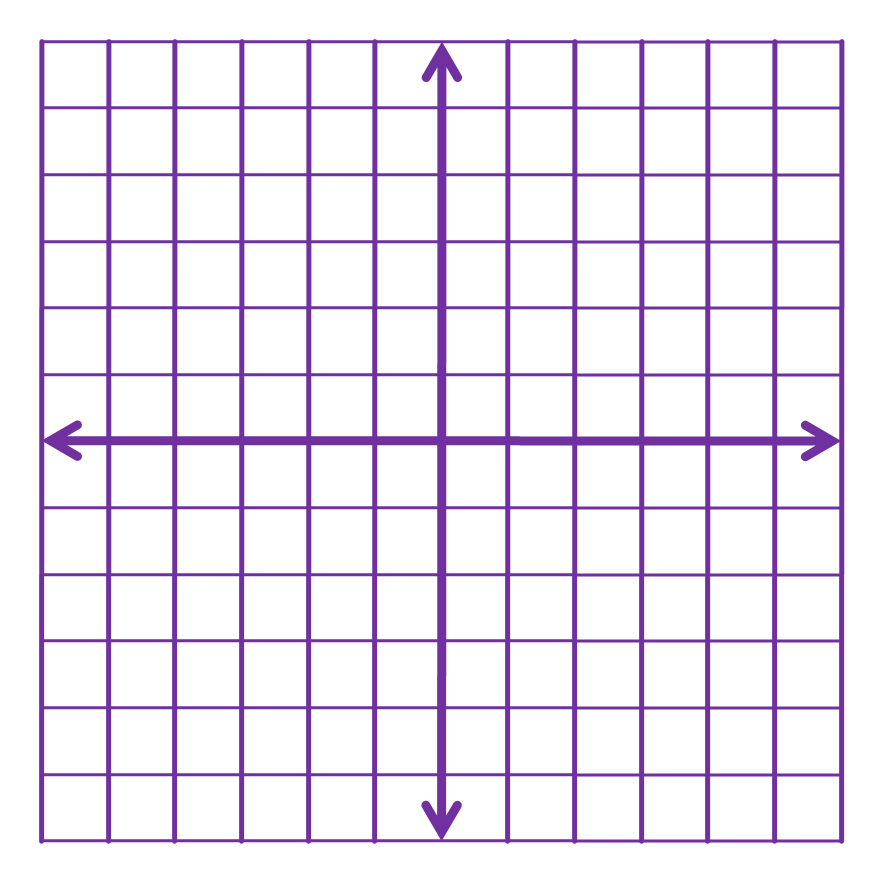
(x + a, y + b)

* (x, y) 🡪 \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

up

right

* Moves a \_\_\_\_\_\_\_\_\_\_\_, b \_\_\_\_\_\_\_



## Reflections

* Can be described mathematically by

(-x, y)

y

* + Reflect over \_\_\_-axis: (x, y) 🡪 \_\_\_\_\_\_\_\_\_\_\_

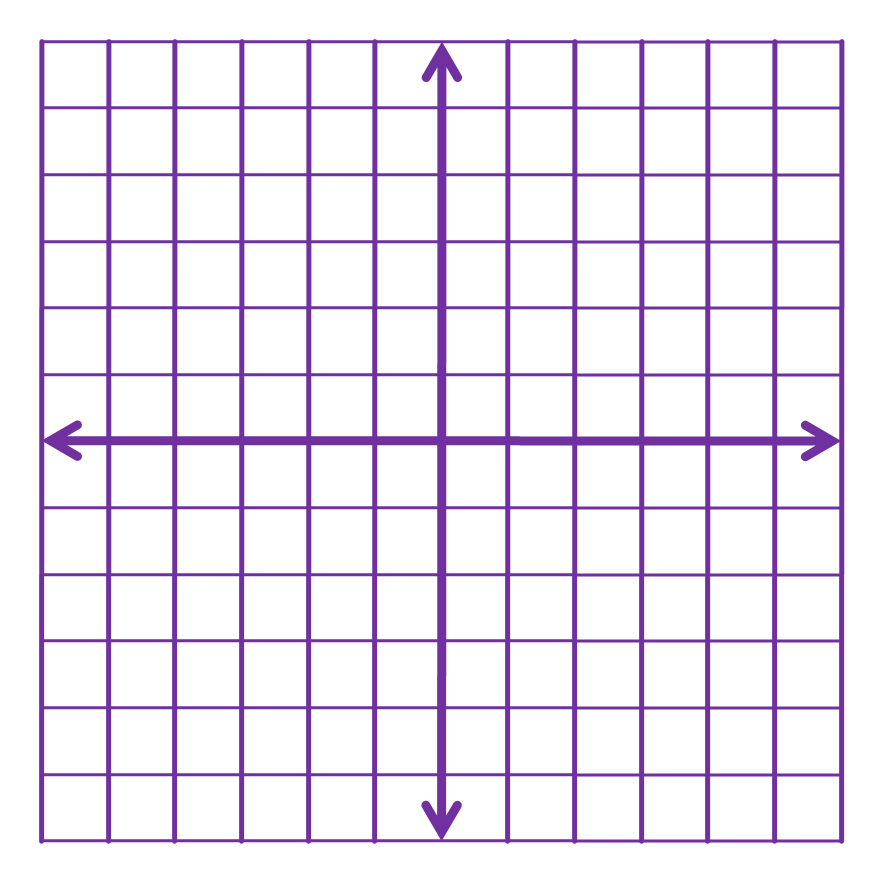
(x, -y)

x

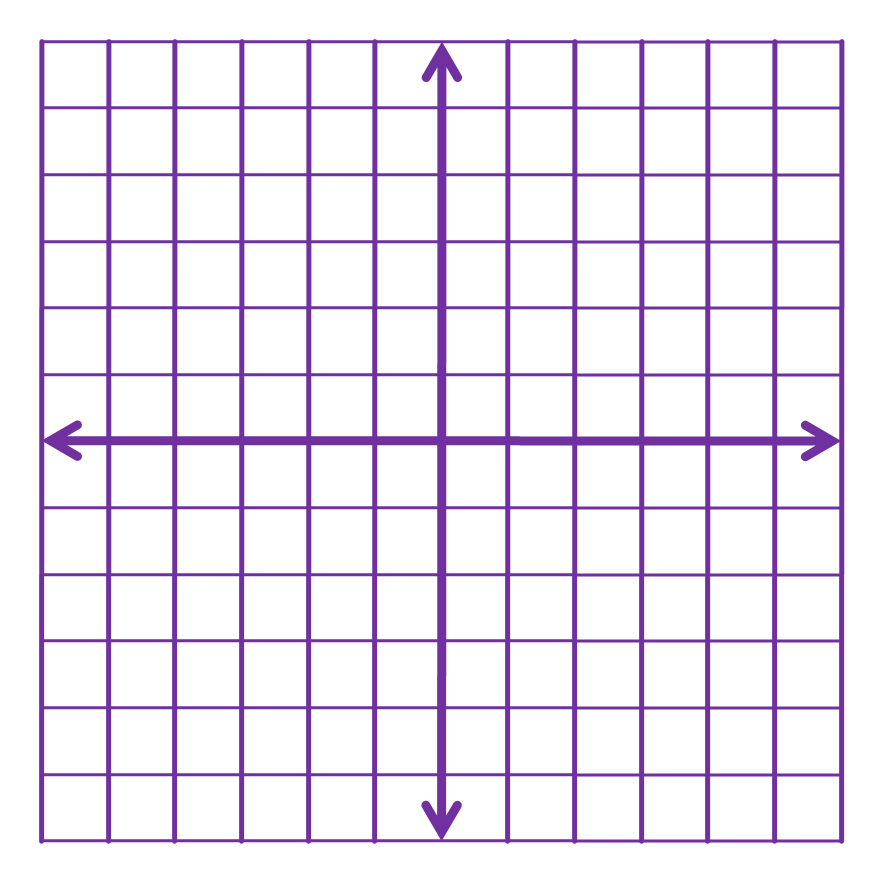
* + Reflect over \_\_\_-axis: (x, y) 🡪 \_\_\_\_\_\_\_\_\_\_\_

Figure WXYZ has the vertices W(-1, 2), X(2, 3), Y(5, 0), and Z(1, -1). Sketch WXYZ and its image after the translation

(x, y) 🡪 (x – 1, y + 3).



The endpoints of are R(4, 5) and S(1, -3). A transformation of results in the image , with coordinates T(4, -5) and U(1, 3). Tell which transformation and write the coordinate rule.



Reflect over x-axis (x, y) 🡪 (x, -y)

## Rotations

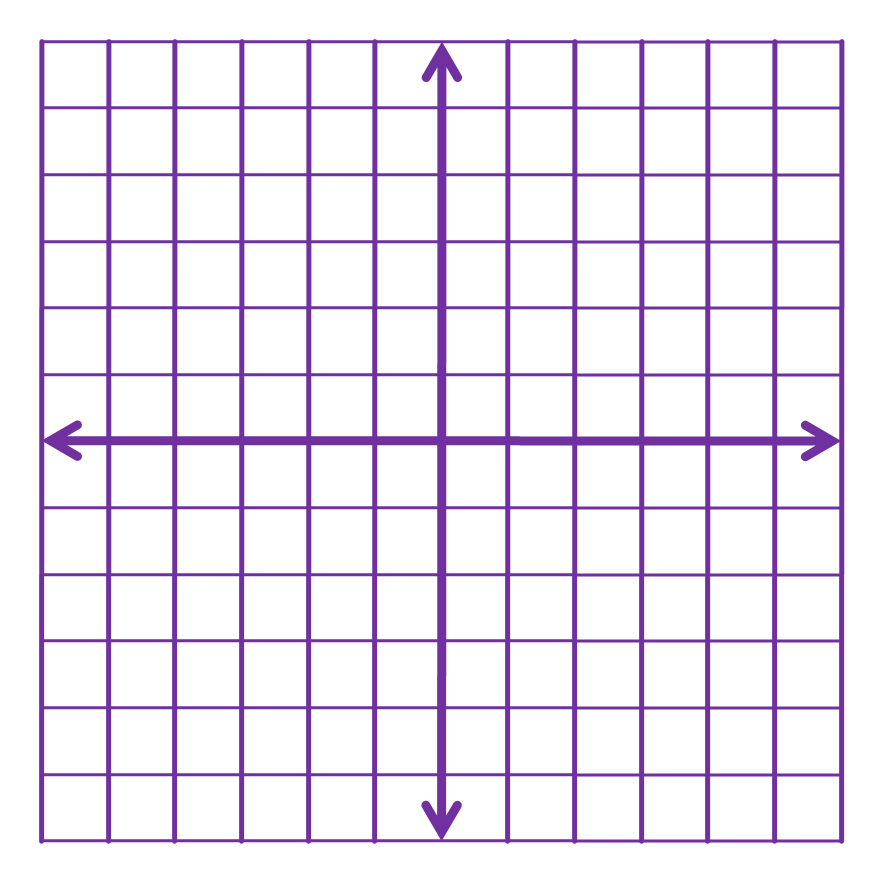
degree

center

* Give \_\_\_\_\_\_\_\_\_\_\_\_ of rotation and \_\_\_\_\_\_\_\_\_\_\_\_ of rotation

counterclockwise

clockwise

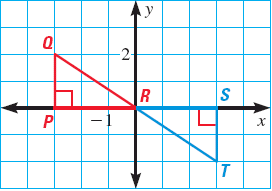


90°

45°

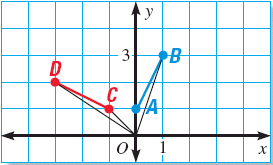
* Rotations are \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ or \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Tell whether ΔPQR is a rotation of ΔSTR. If so, give the angle and direction of rotation.



180° (either direction is correct)

Tell whether ΔOCD is a rotation of ΔOAB. If so, give the angle and direction of rotation.



Not a rotation

Assignment: 276 #2-42 even, 46-50 even = 24 total

Extra Credit: 279 #2, 6 = +2