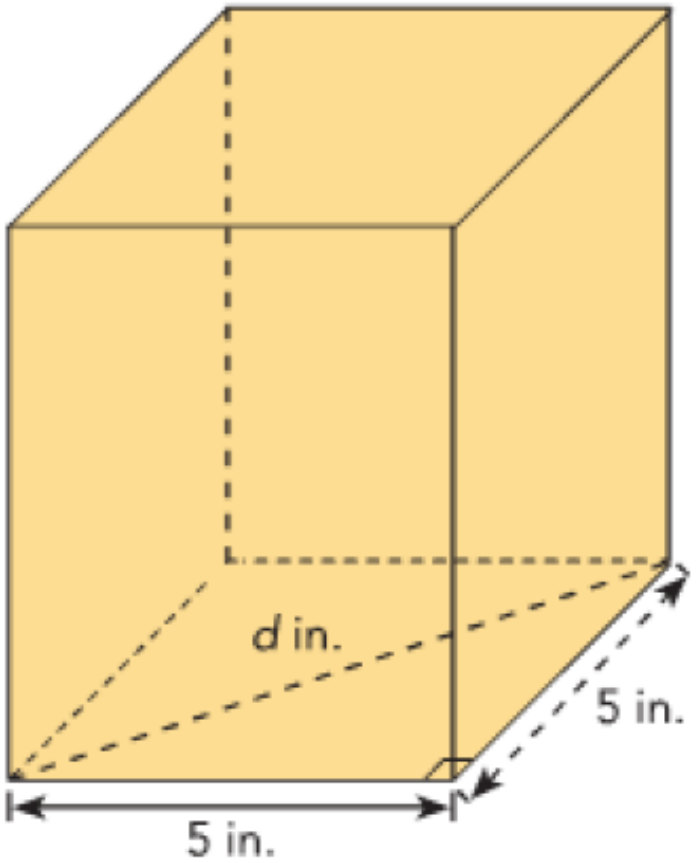
Week 8 Monday Course 3 Warm-up

Find the missing variable, d



Week 8 Monday Course 3 Warm-up

Find the missing variable, d

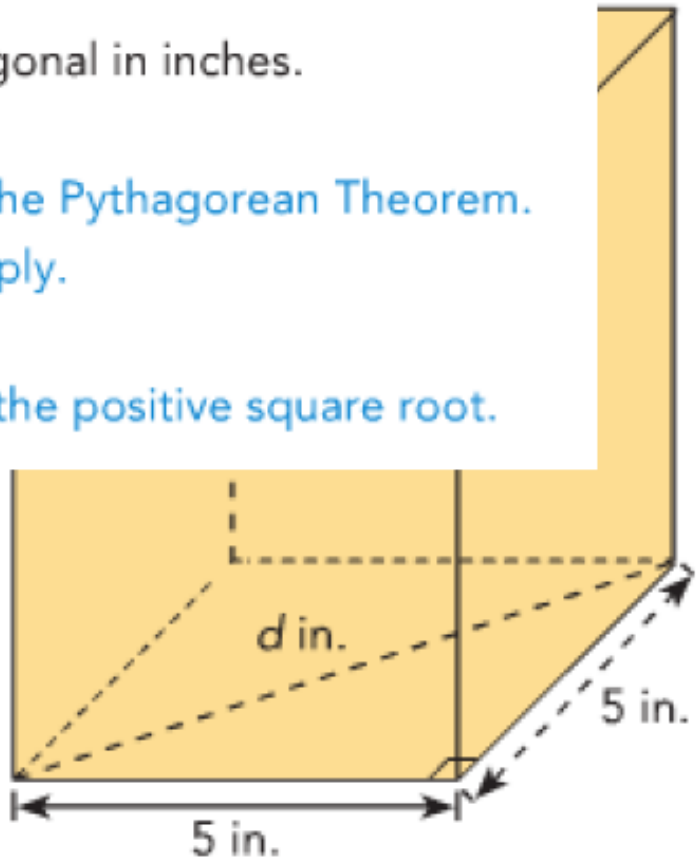
Let d represent the length of the diagonal in inches.

$d^2 = 5^2 + 5^2$ Use the Pythagorean Theorem.

$d^2 = 25 + 25$ Multiply.

$d^2 = 50$ Add.

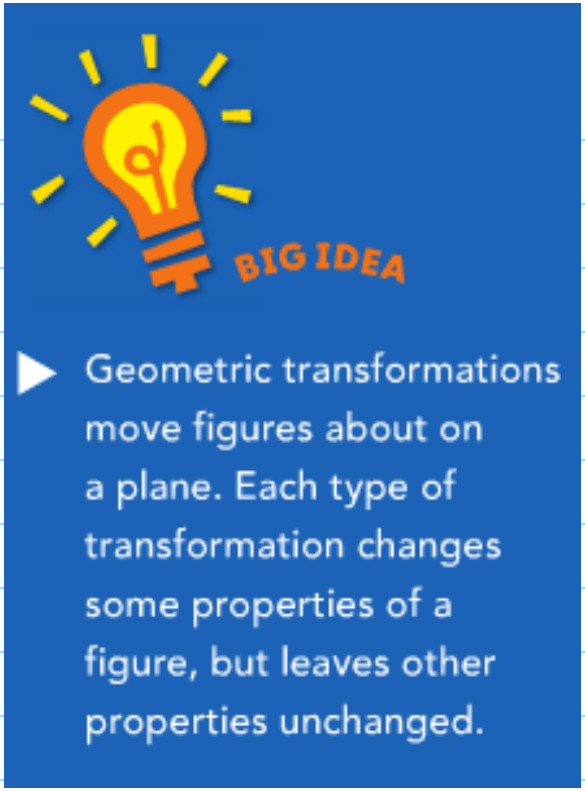
$d = \sqrt{50}$ Find the positive square root.



Lesson 8.3 Rotations Day 1

Objective

TSW understand concept of rotation
*drawing images after rotation
*find coordinates of points after rotation



Common Core State Standards

8G1 Verify experimentally the properties of rotations, reflections, and translations.

8G1 c Parallel lines are taken to parallel lines

Mathematical Practices *MP3 Construct arguments MP 4 Model Mathematics MP5 Use tools strategically*

Lesson 8.3 Rotations Day 1

8.3 Rotations Day 1

TSW understand concept of rotation
*drawing images after rotation
*find coordinates of points after rotation

Vocabulary

Clockwise

Counter clockwise

Lesson 8.3 Rotations Day 1

Vocabulary

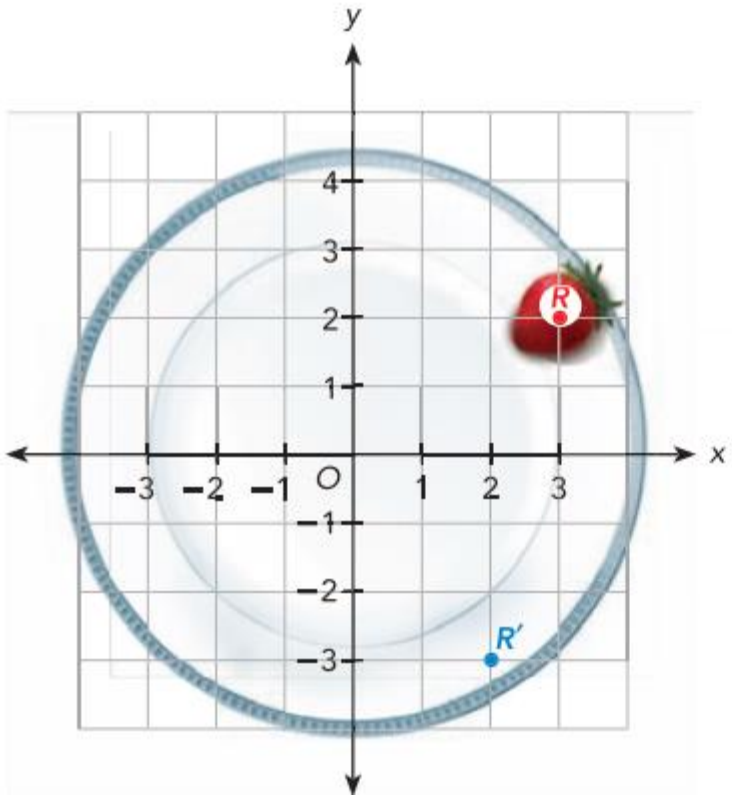
Clockwise	Counter clockwise
clockwise (↻)	**counterclockwise** (↺).

Lesson 8.3 Rotations Day 1

Take out Math book and Turn to example 10. You will also need protractor

Example 10 **Rotate a point.**

A fruit platter is on a rotating plate. A strawberry at position R rotates clockwise to R'. The center of rotation is the origin, O. State the angle of rotation.



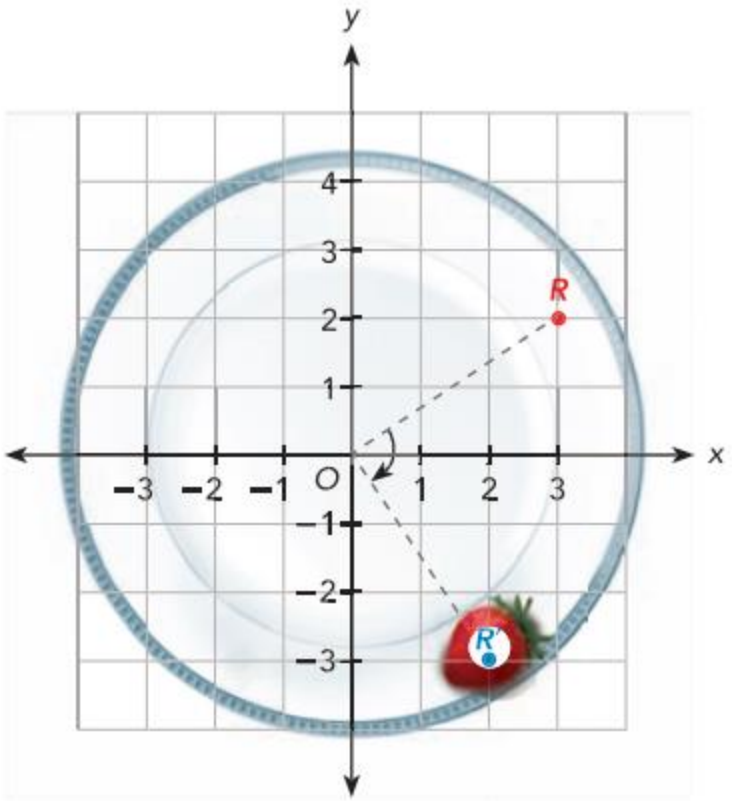
Lesson 8.3 Rotations Day 1

Take out Math book and Turn to example 10. You will also need protractor

Solution

Join R and R' to the origin, O.

Measure $\angle ROR'$. It is 90°. So, the angle of rotation is 90°



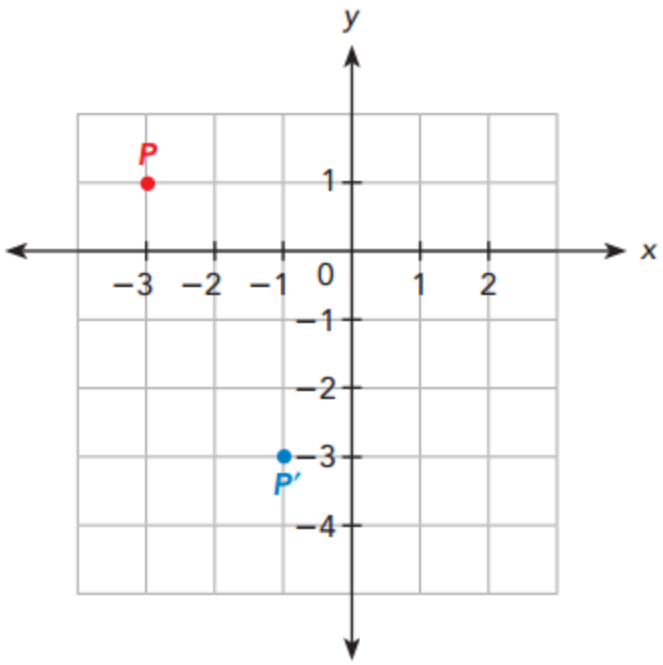
Lesson 8.3 Rotations Day 1

Guided Practice

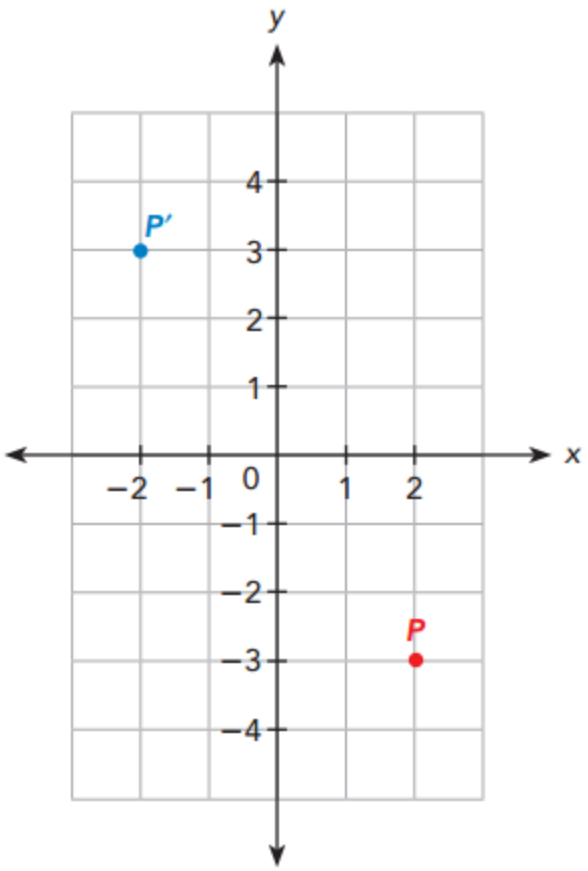
Solve. Show your work.

1 P is rotated counterclockwise to P' about the origin. Copy each graph onto a coordinate plane. State the angle of rotation.

a)



b)



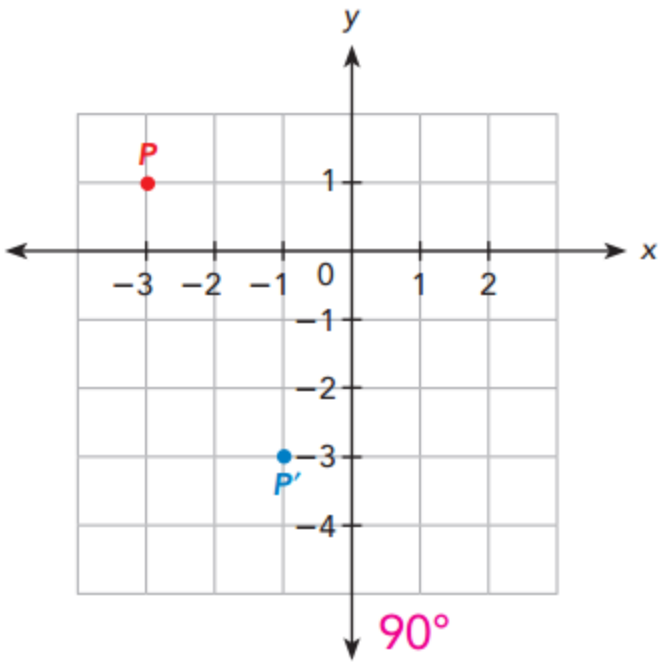
Lesson 8.3 Rotations Day 1

Guided Practice

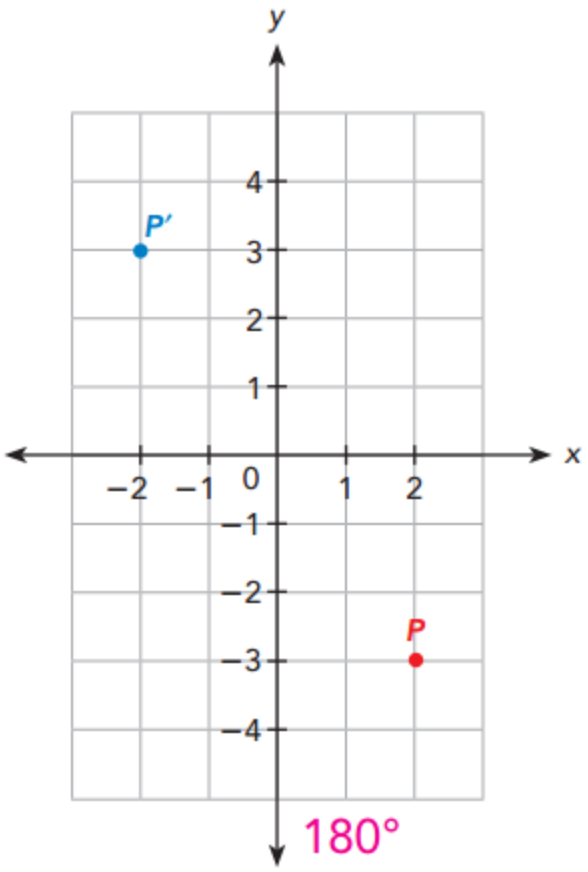
Solve. Show your work.

1 P is rotated counterclockwise to P' about the origin. Copy each graph onto a coordinate plane. State the angle of rotation.

a)

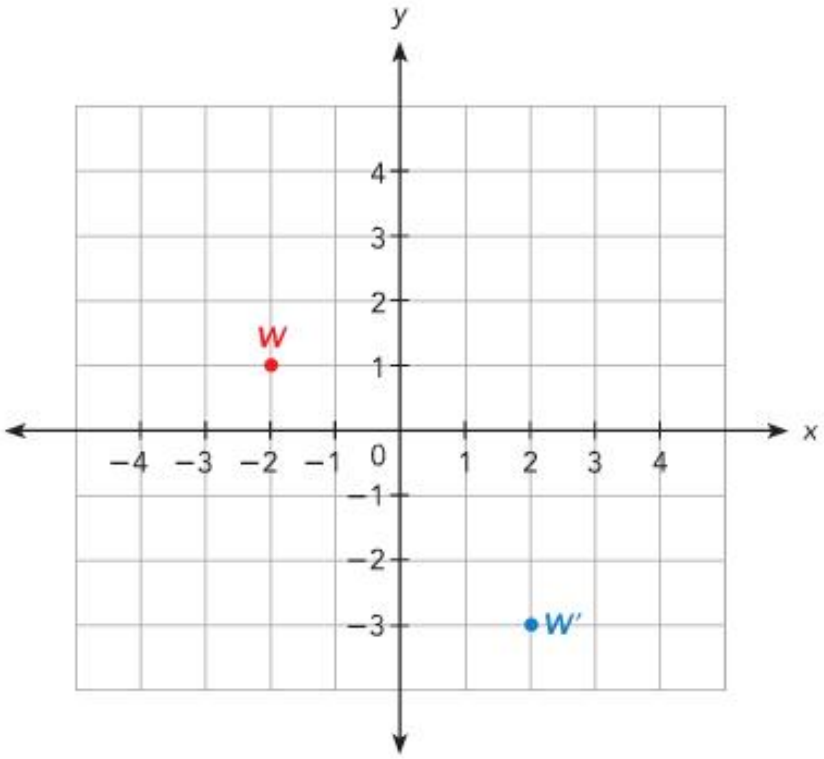


b)

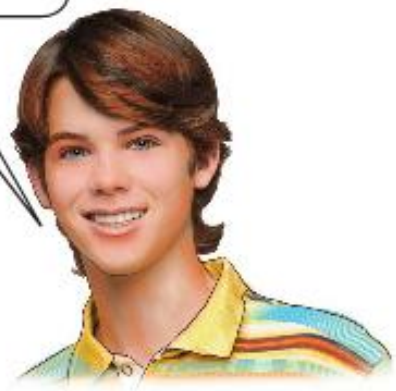


Lesson 8.3 Rotations Day 1

2 The tip of a fan blade for a ceiling fan rotates from position W to W'. The angle of rotation is 180°.



A 180° rotation is also called a **half turn**. You do not have to include the direction of rotation for half turn, because 180° clockwise is the same as 180° counterclockwise.

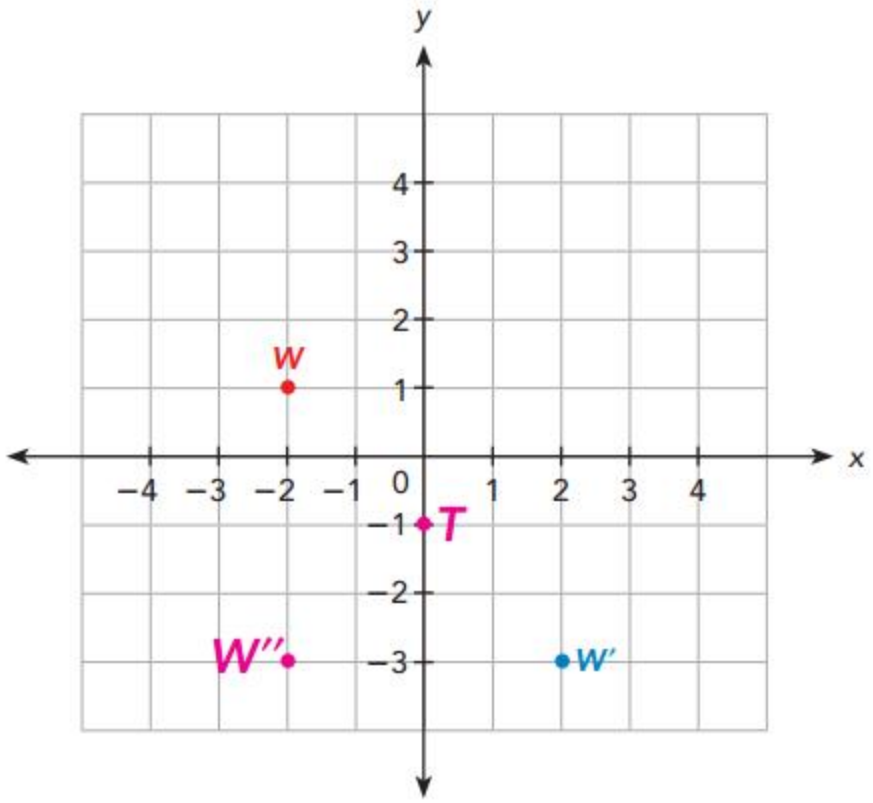


a) On a copy of the graph, mark and label the center of rotation as T.

b) W' is rotated 90° clockwise to W'' about the center T. Label W'' on the graph in **a)**.

Lesson 8.3 Rotations Day 1

2 The tip of a fan blade for a ceiling fan rotates from position W to W'. The angle of rotation is 180°.

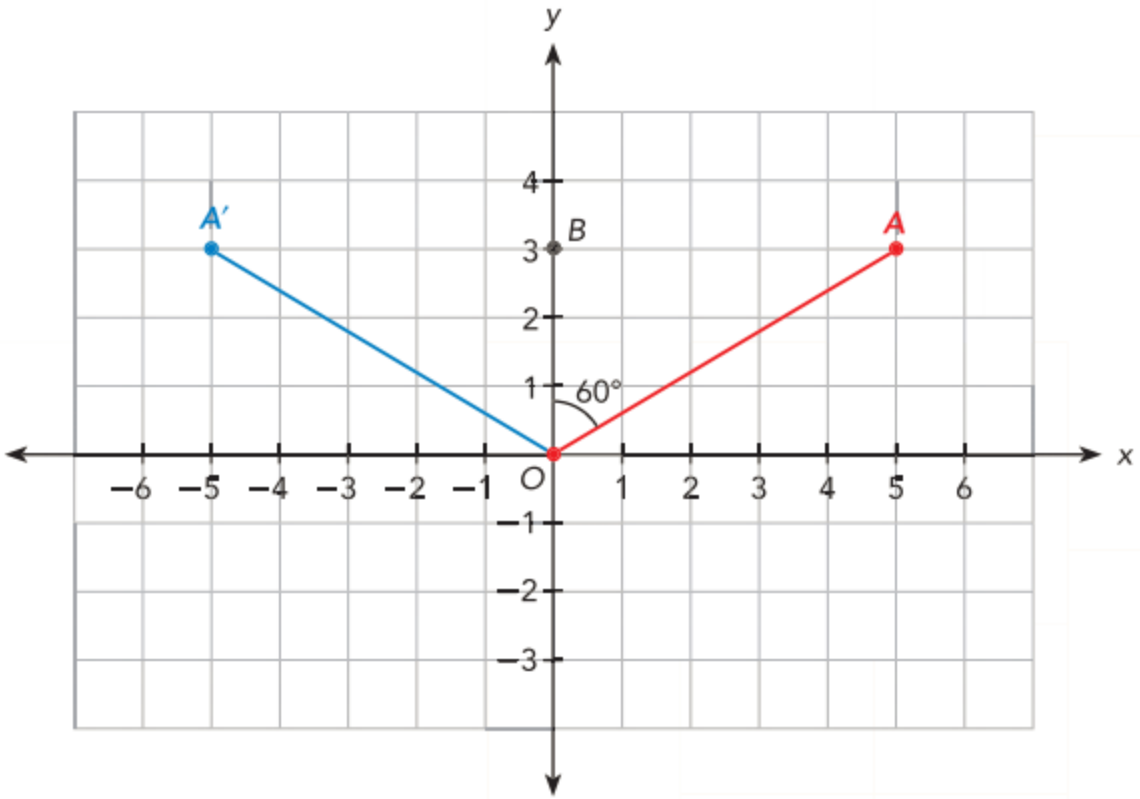


A 180° rotation is also called a **half turn**. You do not have to include the direction of rotation for half turn, because 180° clockwise is the same as 180° counterclockwise.

Lesson 8.3 Rotations Day 1

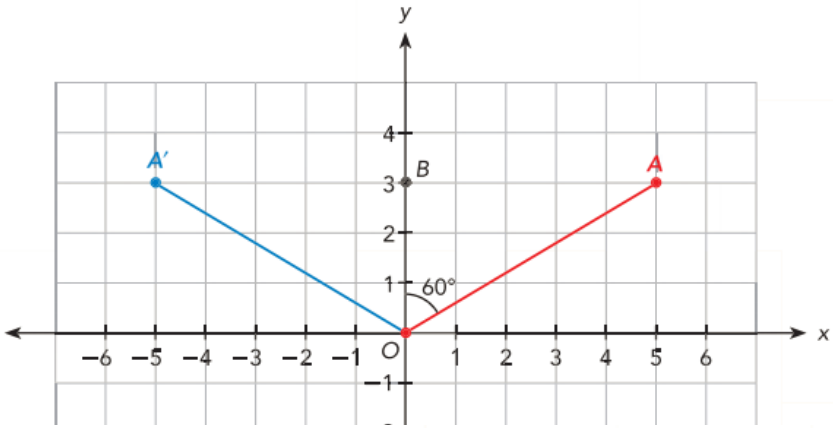
Example 11 **Rotate a line segment.**

The windshield wiper on a car is swept through a counterclockwise rotation from A to A' about the origin, O. B is the point at (0, 3). If $m\angle AOB = 60°$, what is the angle of rotation?



Example 11 **Rotate a line segment.**

The windshield wiper on a car is swept through a counterclockwise rotation from A to A' about the origin, O. B is the point at (0, 3). If $m\angle AOB = 60°$, what is the angle of rotation?



Solution

$OA = OA'$. Triangle OAA' is an isosceles triangle with y-axis as the line of symmetry.

$m\angle AOB = m\angle A'OB = 60°$

So, the angle of rotation is 120°.

Think Math

Both A and A' are 3 units from the x-axis and 5 units from the y-axis. Can you explain why?

Because A and A' are symmetric in the y-axis. Their x-coordinates are opposites.

Lesson 8.3 Rotations Day 1

Guided Practice

Complete.

3 The hour hand of a clock turns through an angle from 12 noon to 4 P.M. State the following.

a) The center of rotation

b) The angle and direction of rotation

Lesson 8.3 Rotations Day 1

Guided Practice

Complete.

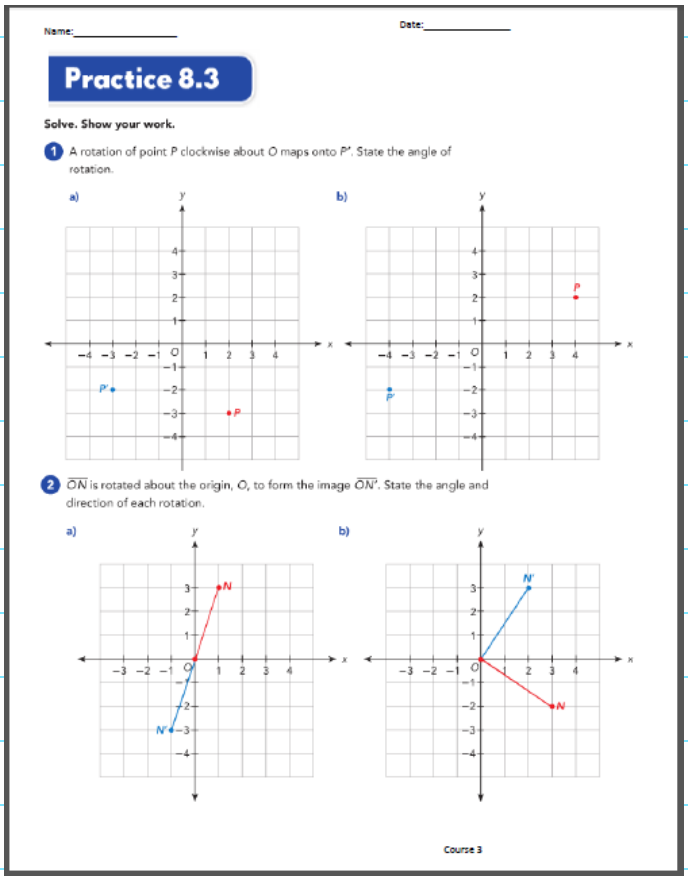
3 The hour hand of a clock turns through an angle from 12 noon to 4 P.M. State the following.

a) The center of rotation Center of the clock face

b) The angle and direction of rotation 120° clockwise

Lesson 8.3 Rotations Day 1

Practice 8.2 #1-3 and 8



Name:_____ Date:_____

Practice 8.3

Solve. Show your work.

1. A rotation of point P clockwise about O maps onto P'. State the angle of rotation.

a)

b)

2. $\overline{ON}$ is rotated about the origin, O, to form the image $\overline{ON'}$. State the angle and direction of each rotation.

a)

b)

Course 3

Challenge-

*Solve created equations

"Pick a Snowflake"

*BuzzMath

Lesson Check #1 & 4- can rotate a figure and find the coordinates after 90 and 180 degree rotation

Lesson 8.3 Rotations Day 1

Ticket Out the Door- Connect, Extend, Challenge

1. How are the ideas and information presented CONNECTED to what you already knew?

2. What new ideas did you get that EXTENDED or pushed your thinking in new directions?

3. What is still CHALLENGING or confusing for you to get your mind around? What questions, wonderings or puzzles do you now have?