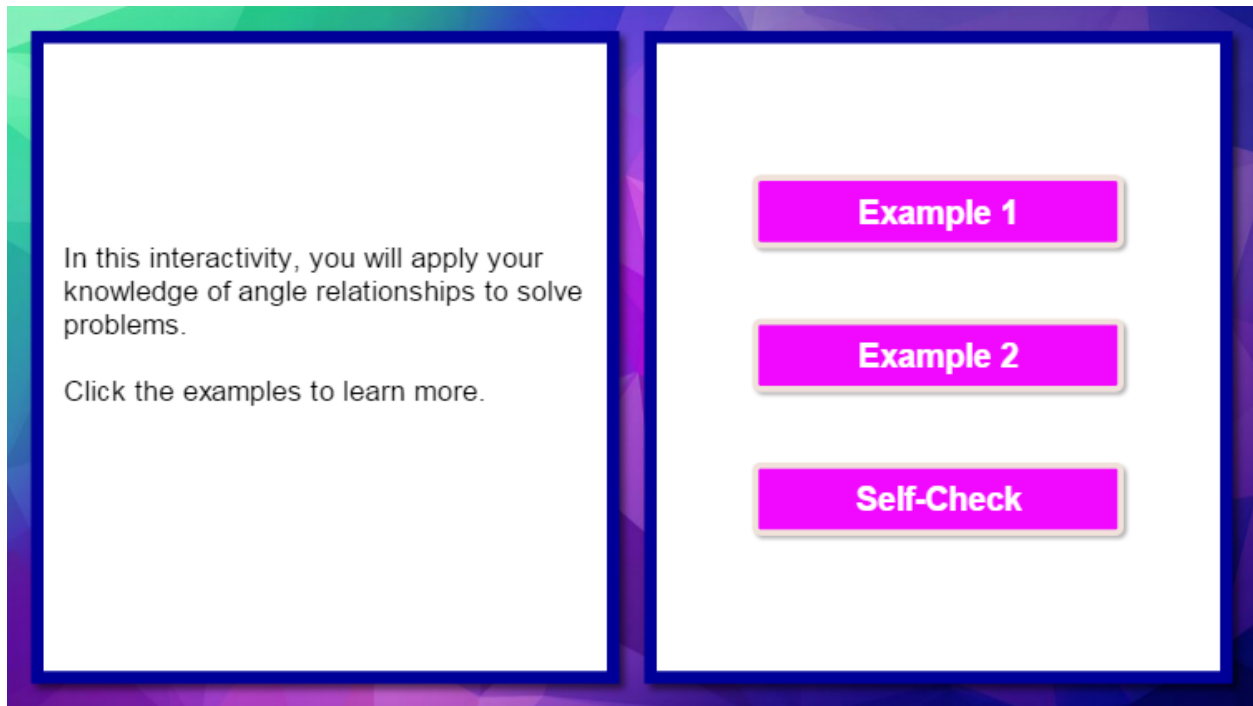


Module 2: Angles Formed by a Transversal Intersecting Parallel Lines

Topic 1 Content: Using Angle Relationships to Solve Problems

Introduction



In this interactivity, you will apply your knowledge of angle relationships to solve problems.

Click the examples to learn more.

[Example 1](#)

[Example 2](#)

[Self-Check](#)

In this interactivity, you will apply your knowledge of angle relationships to solve problems.

Click the examples to learn more.

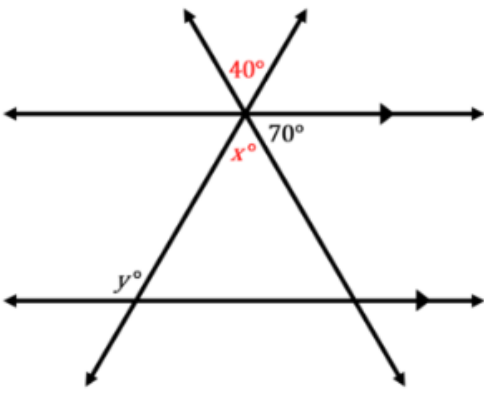
Module 2: Angles Formed by a Transversal Intersecting Parallel Lines

Topic 1 Content: Using Angle Relationships to Solve Problems

Example 1

Example 1

Find x and y .



One strategy is to begin by finding x . Notice that the 40° angle and the angle with a measure of x° are a pair of vertical angles.

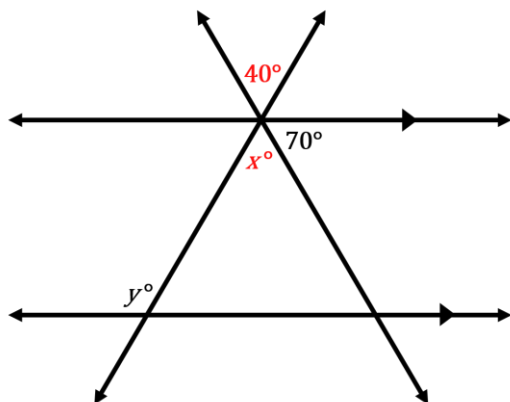
Vertical angles are _____.

- congruent
- supplementary
- complementary

Select the correct answer and click **SUBMIT** to check your response.

Submit

Find x and y .



One strategy is to begin by finding x . Notice that the 40° angle and the angle with a measure of x° are a pair of vertical angles.

Vertical angles are _____.

- congruent
- supplementary
- complementary

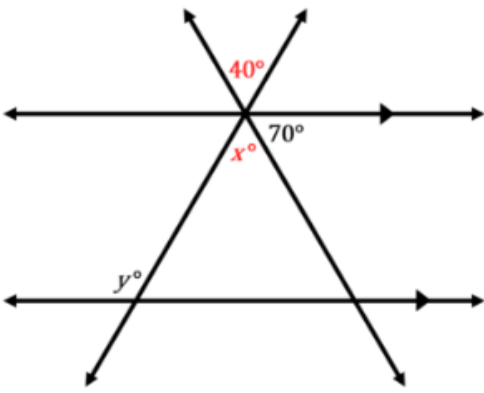
Select the correct answer and click **SUBMIT** to check your response.

Module 2: Angles Formed by a Transversal Intersecting Parallel Lines
Topic 1 Content: Using Angle Relationships to Solve Problems

Example 1 (continued)

Example 1

Find x and y .



The diagram shows two horizontal parallel lines intersected by a transversal. At the top intersection, the top-right angle is labeled 40° and the bottom-right angle is labeled x° . At the bottom intersection, the bottom-left angle is labeled y° .

One strategy is to begin by finding x . Notice that the 40° angle and the angle with a measure of x° are a pair of vertical angles.

Vertical angles are _____.

✓ congruent

Click **NEXT** to continue.

Next

The correct answer is *congruent*. Vertical angles are congruent.

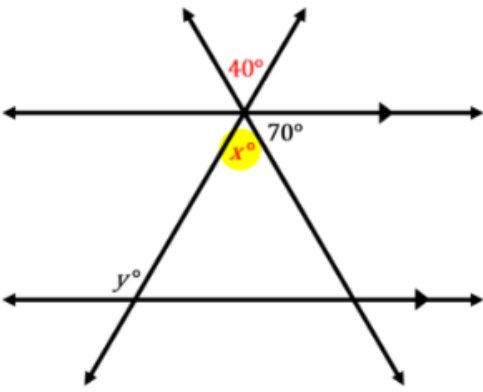
Click **NEXT** to continue.

Module 2: Angles Formed by a Transversal Intersecting Parallel Lines
Topic 1 Content: Using Angle Relationships to Solve Problems

Example 1 (continued)

Example 1

Find x and y .



Because a pair of vertical angles are congruent, you have enough information to find x .

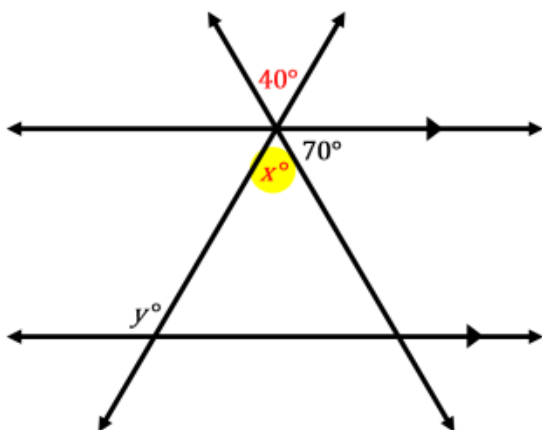
$x =$

Enter the value of x in the box above and click **SUBMIT** to check your response.

Submit

Because a pair of vertical angles are congruent, you have enough information to find x .

$x =$ _____



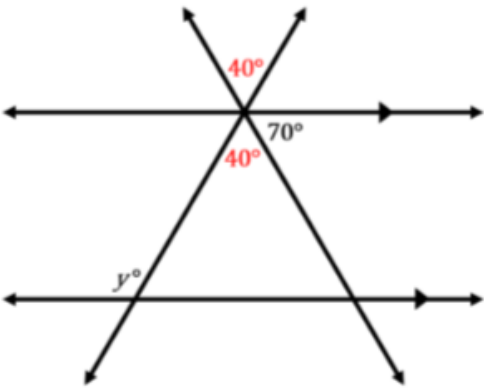
Enter the value of x in the box above and click **SUBMIT** to check your response.

Module 2: Angles Formed by a Transversal Intersecting Parallel Lines
Topic 1 Content: Using Angle Relationships to Solve Problems

Example 1 (continued)

Example 1

Find x and y .



Because a pair of vertical angles are congruent, you have enough information to find x .

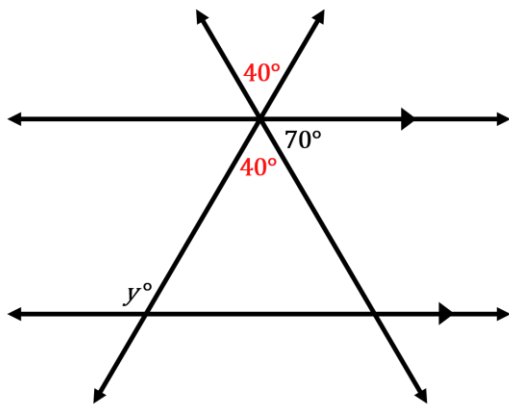
$x = 40$ ✓

Click **NEXT** to continue.

Next

The correct answer is 40.

$$x = 40$$



Click **NEXT** to continue.

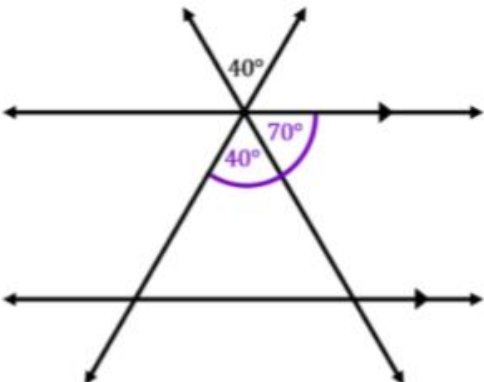
Module 2: Angles Formed by a Transversal Intersecting Parallel Lines

Topic 1 Content: Using Angle Relationships to Solve Problems

Example 1 (continued)

Example 1

Find x and y .



Continue using your knowledge of angle relationships to find y .

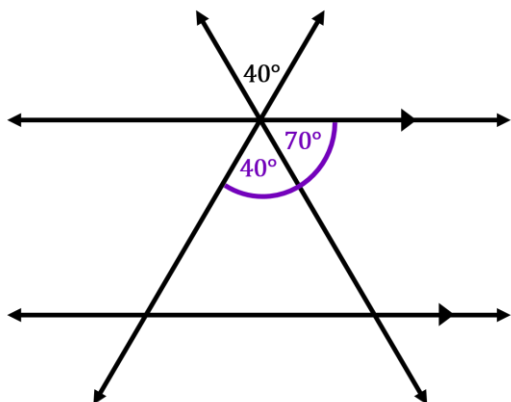
What is the measure of the obtuse angle that consists of the 40° angle and the 70° angle? Use the Angle Addition Postulate to determine its value.

Enter the measure of the obtuse angle in the box above and click **SUBMIT** to check your response.

Submit

Continue using your knowledge of angle relationships to find y .

What is the measure of the obtuse angle that consists of the 40° angle and the 70° angle? Use the Angle Addition Postulate to determine its value.



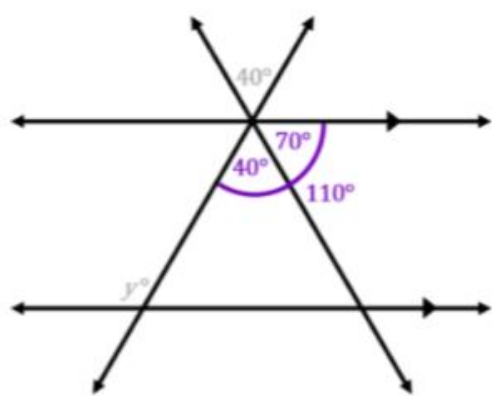
Enter the measure of the obtuse angle in the box above and click **SUBMIT** to check your response.

Module 2: Angles Formed by a Transversal Intersecting Parallel Lines
Topic 1 Content: Using Angle Relationships to Solve Problems

Example 1 (continued)

Example 1

Find x and y .



Continue using your knowledge of angle relationships to find y .

What is the measure of the obtuse angle that consists of the 40° angle and the 70° angle? Use the Angle Addition Postulate to determine its value.

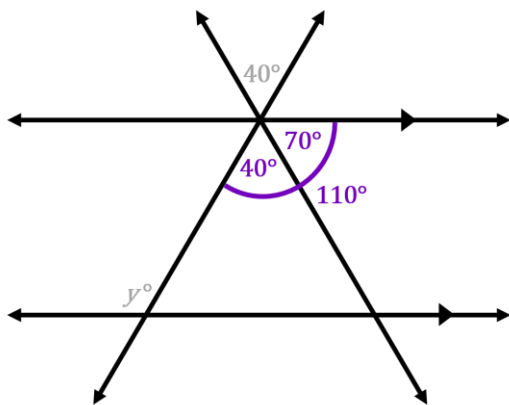
$40^\circ + 70^\circ = 110^\circ$ ✓

Click **NEXT** to continue.

Next

The correct answer is 110° .

$$40^\circ + 70^\circ = 110^\circ$$



Click **NEXT** to continue.

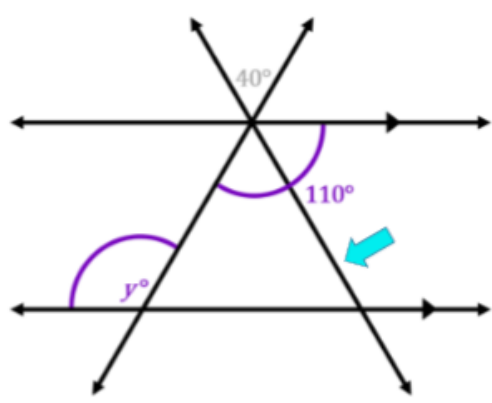
Module 2: Angles Formed by a Transversal Intersecting Parallel Lines

Topic 1 Content: Using Angle Relationships to Solve Problems

Example 1 (continued)

Example 1

Find x and y .



Now focus your attention on the 110° angle and the angle with a measure of y° . Can you identify this pair of angles?

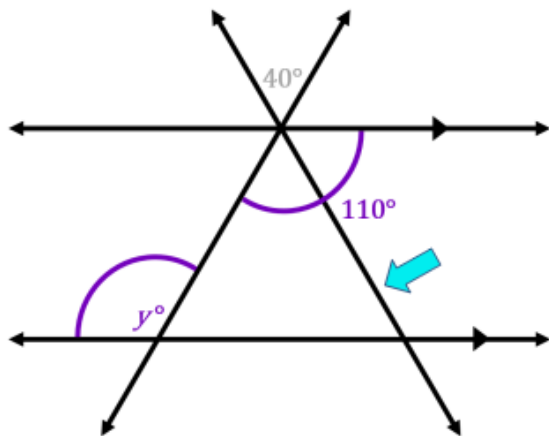
It may help if, for a moment, you disregard the transversal in the 110° angle.

Click **NEXT** to hide the transversal.

Next

Now focus your attention on the 110° angle and the angle with a measure of y° . Can you identify this pair of angles?

It may help if, for a moment, you disregard the transversal in the 110° angle.



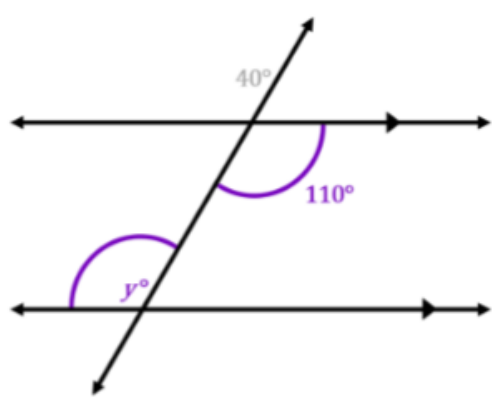
Click **NEXT** to hide the transversal.

Module 2: Angles Formed by a Transversal Intersecting Parallel Lines
Topic 1 Content: Using Angle Relationships to Solve Problems

Example 1 (continued)

Example 1

Find x and y .



The angles are _____.

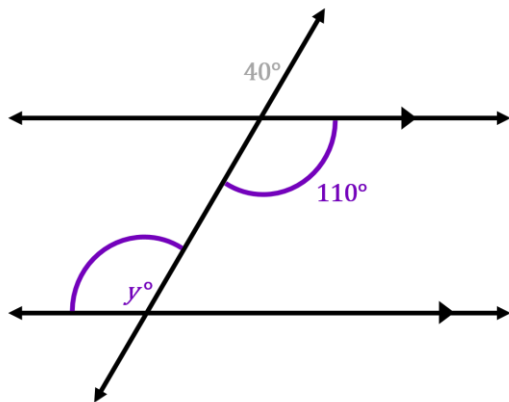
- same-side interior angles
- alternate interior angles
- corresponding angles

Select the correct answer and click **SUBMIT** to check your response.

Submit

The angles are ____.

- same-side interior angles
- alternate interior angles
- corresponding angles



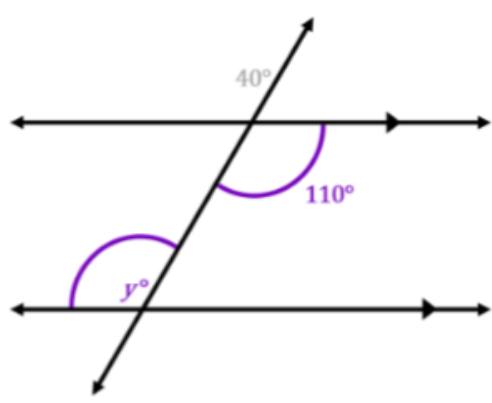
Select the correct answer and click **SUBMIT** to check your response.

Module 2: Angles Formed by a Transversal Intersecting Parallel Lines
Topic 1 Content: Using Angle Relationships to Solve Problems

Example 1 (continued)

Example 1

Find x and y .



The angles are _____.

✓ alternate interior angles

The angles lie in the interior and are on the opposite sides of the transversal.

Click **NEXT** to continue.

Next

The correct answer is *alternate interior angles*. The angles are alternate interior angles.

The angles lie in the interior and are on the opposite sides of the transversal.

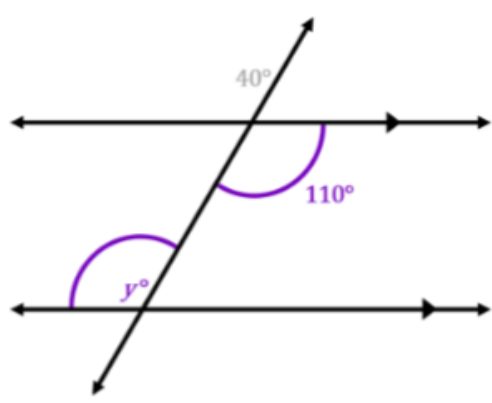
Click **NEXT** to continue.

Module 2: Angles Formed by a Transversal Intersecting Parallel Lines
Topic 1 Content: Using Angle Relationships to Solve Problems

Example 1 (continued)

Example 1

Find x and y .



If a transversal intersects parallel lines, then alternate interior angles are _____.

congruent
supplementary

Select the correct answer and click **SUBMIT** to check your response.

Submit

If a transversal intersects parallel lines, then alternate interior angles are _____.

- congruent
- supplementary

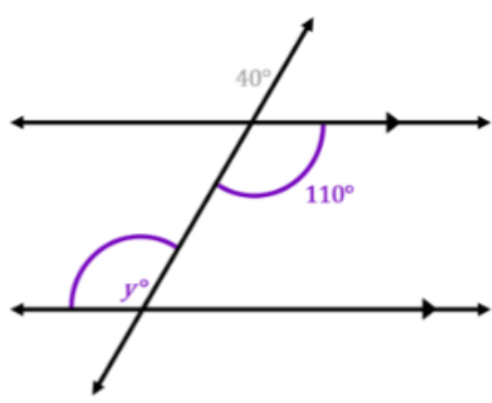
Select the correct answer and click **SUBMIT** to check your response.

Module 2: Angles Formed by a Transversal Intersecting Parallel Lines
Topic 1 Content: Using Angle Relationships to Solve Problems

Example 1 (continued)

Example 1

Find x and y .



The diagram shows two parallel horizontal lines intersected by a transversal line. The transversal intersects the top parallel line at an angle of 40° . At the same intersection, the interior angle to the right is 110° . The transversal intersects the bottom parallel line at an interior angle to the left labeled y° .

If a transversal intersects parallel lines, then alternate interior angles are _____.

✓ congruent

Click **NEXT** to continue.

Next

The correct answer is *congruent*. If a transversal intersects parallel lines, then alternate interior angles are congruent.

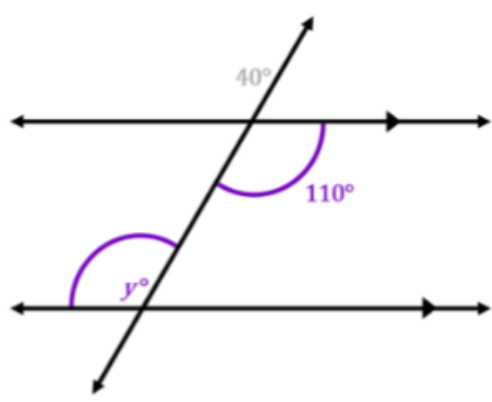
Click **NEXT** to continue.

Module 2: Angles Formed by a Transversal Intersecting Parallel Lines
Topic 1 Content: Using Angle Relationships to Solve Problems

Example 1 (continued)

Example 1

Find x and y .



Because alternate interior angles are congruent, you now know the value of y .

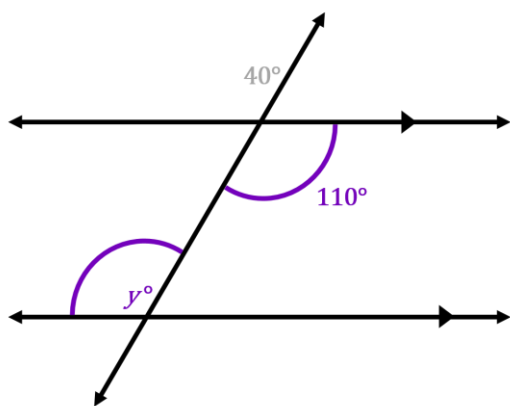
$y =$

Enter the value of y in the box above and click **SUBMIT** to check your response.

Submit

Because alternate interior angles are congruent, you now know the value of y .

$y =$ _____



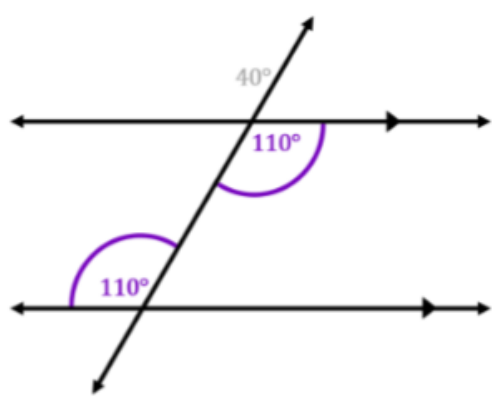
Enter the value of y in the box above and click **SUBMIT** to check your response.

Module 2: Angles Formed by a Transversal Intersecting Parallel Lines
Topic 1 Content: Using Angle Relationships to Solve Problems

Example 1 (continued)

Example 1

Find x and y .



Because alternate interior angles are congruent, you now know the value of y .

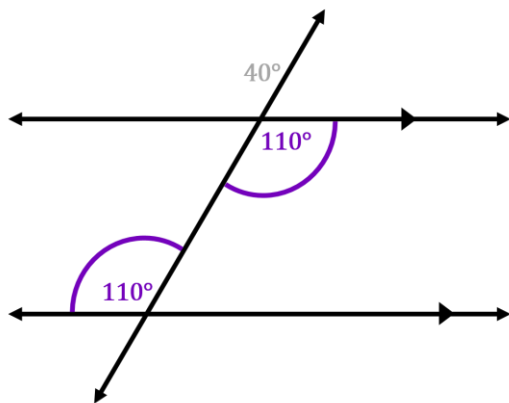
$y = 110$ ✓

Click **NEXT** to continue.

Next

The correct answer is 110.

$$y = 110$$



Click **NEXT** to continue.

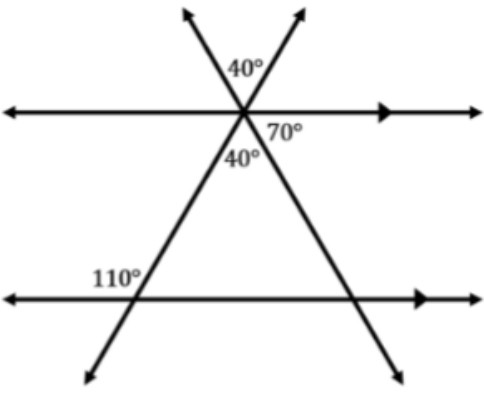
Module 2: Angles Formed by a Transversal Intersecting Parallel Lines

Topic 1 Content: Using Angle Relationships to Solve Problems

Example 1 (continued)

Example 1

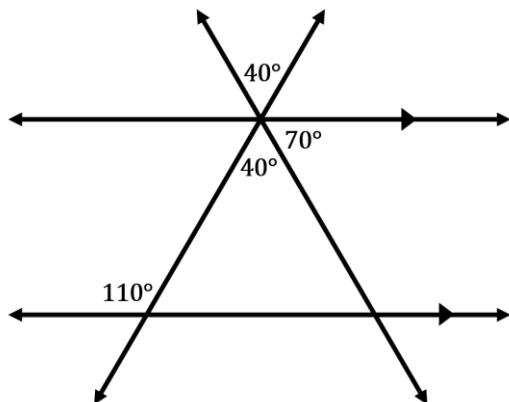
Find x and y .



Your work is complete. You have used your knowledge of angle relationships to determine that $x = 40$ and $y = 110$.

Menu

Your work is complete. You have used your knowledge of angle relationships to determine that $x = 40$ and $y = 110$.



Module 2: Angles Formed by a Transversal Intersecting Parallel Lines

Topic 1 Content: Using Angle Relationships to Solve Problems

Example 2

Example 2

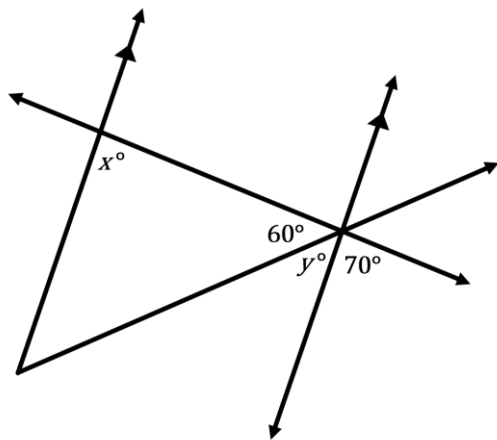
Find x and y .

You must apply your knowledge of angle relationships to solve this problem. You may choose to begin by finding y .

Click **NEXT** to continue.

Next

Find x and y .



You must apply your knowledge of angle relationships to solve this problem. You may choose to begin by finding y .

Click **NEXT** to continue.

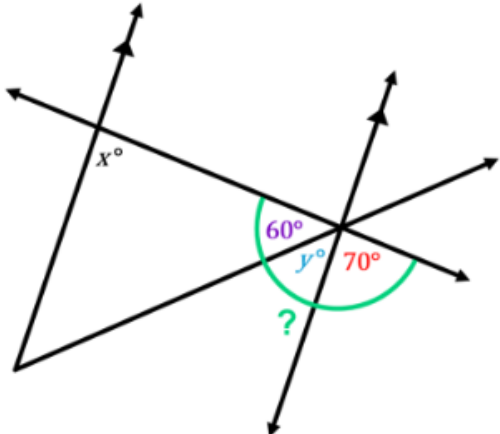
Module 2: Angles Formed by a Transversal Intersecting Parallel Lines

Topic 1 Content: Using Angle Relationships to Solve Problems

Example 2 (continued)

Example 2

Find x and y .



Notice that the 60° angle, the angle with a measure of y° , and the 70° angle form a straight angle.

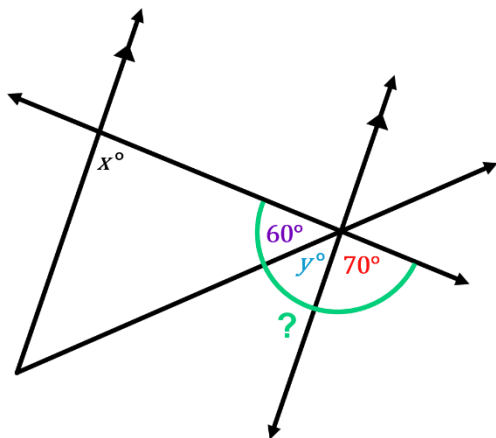
Therefore, the sum of their measures equals _____.

- 90°
- 120°
- 180°

Select the correct answer and click **SUBMIT** to check your response.

Submit

Notice that the 60° angle, the angle with a measure of y° , and the 70° angle form a straight angle.



Therefore, the sum of their measures equals _____.

- 90°
- 120°
- 180°

Select the correct answer and click **SUBMIT** to check your response.

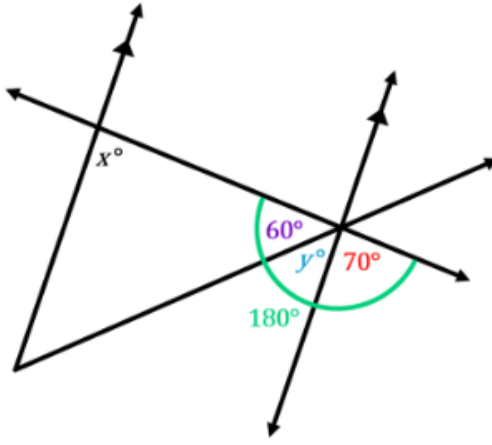
Module 2: Angles Formed by a Transversal Intersecting Parallel Lines

Topic 1 Content: Using Angle Relationships to Solve Problems

Example 2 (continued)

Example 2

Find x and y .



Notice that the 60° angle, the angle with a measure of y° , and the 70° angle form a straight angle.

Therefore, the sum of their measures equals _____.

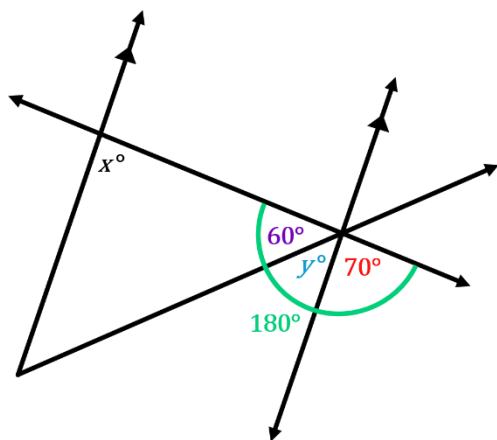
✓ 180°

The measure of a straight angle is 180° .

Click **NEXT** to continue.

Next

The correct answer is 180° . The measure of a straight angle is 180° .



Click **NEXT** to continue.

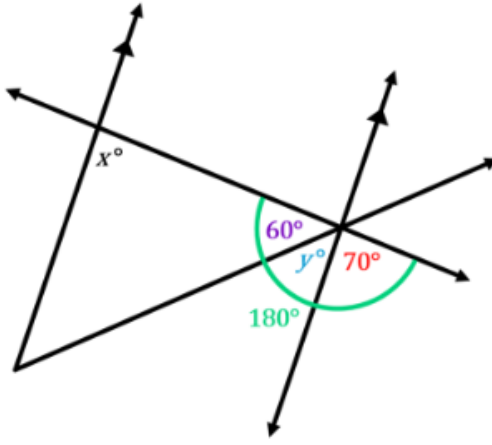
Module 2: Angles Formed by a Transversal Intersecting Parallel Lines

Topic 1 Content: Using Angle Relationships to Solve Problems

Example 2 (continued)

Example 2

Find x and y .



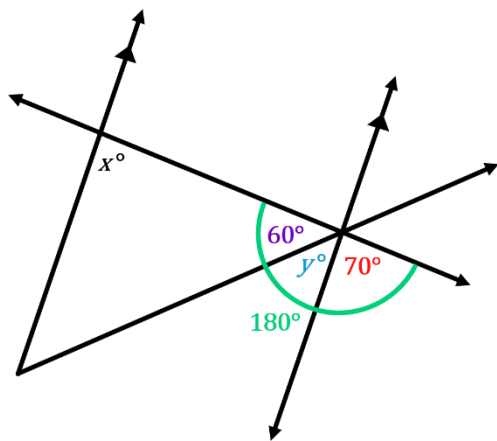
Now that you know that the sum of the measures of the angles is 180° , you can use the Angle Addition Postulate to find the measure of y .

$y =$

Enter the value of y in the box above and click **SUBMIT** to check your response.

Submit

Now that you know that the sum of the measures of the angles is 180° , you can use the Angle Addition Postulate to find the measure of y .



$y =$ _____

Enter the value of y in the box above and click **SUBMIT** to check your response.

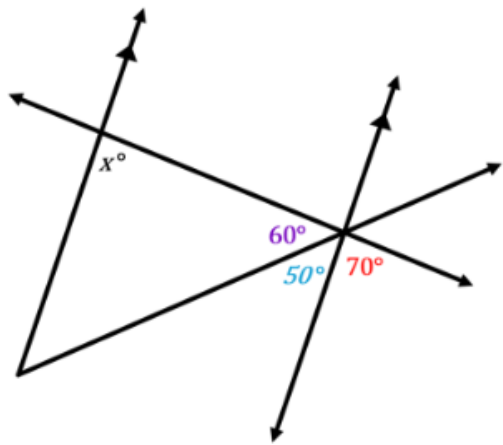
Module 2: Angles Formed by a Transversal Intersecting Parallel Lines

Topic 1 Content: Using Angle Relationships to Solve Problems

Example 2 (continued)

Example 2

Find x and y .



Now that you know that the sum of the measures of the angles is 180° , you can use the Angle Addition Postulate to find the measure of y .

$y = 50$ ✓

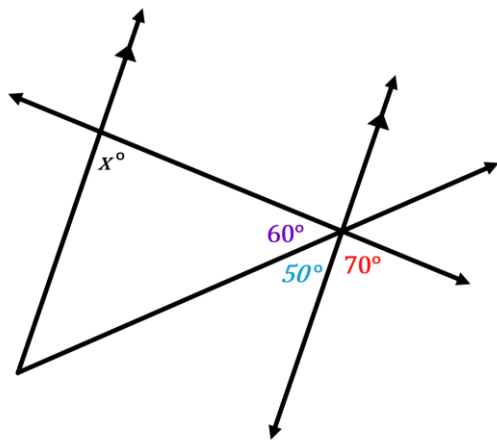
The sum of the measures is 180° . So,

$$60 + y + 70 = 180 \quad \text{Angle Addition Postulate}$$
$$y + 130 = 180 \quad \text{Combine like terms.}$$
$$y = 50 \quad \text{Subtract 130 from each side.}$$

Click **NEXT** to continue.

Next

The correct answer is 50.



The sum of the measures is 180° . So,

$$60 + y + 70 = 180 \quad \text{Angle Addition Postulate}$$
$$y + 130 = 180 \quad \text{Combine like terms.}$$
$$y = 50 \quad \text{Subtract 130 from each side.}$$

Click **NEXT** to continue.

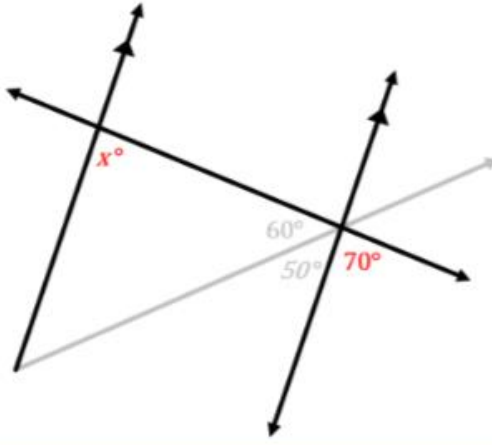
Module 2: Angles Formed by a Transversal Intersecting Parallel Lines

Topic 1 Content: Using Angle Relationships to Solve Problems

Example 2 (continued)

Example 2

Find x and y .



Continue using your knowledge of angle relationships to find x . One strategy is to focus your attention on the 70° angle and the angle with a measure of x° . It may also help to disregard the ray that intersects the parallel lines.

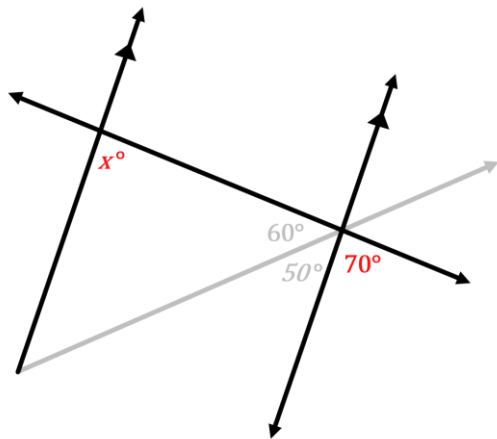
The angles shown are _____.

- same-side exterior angles
- alternate interior angles
- corresponding angles

Select the correct answer and click **SUBMIT** to check your response.

Submit

Continue using your knowledge of angle relationships to find x . One strategy is to focus your attention on the 70° angle and the angle with a measure of x° . It may also help to disregard the ray that intersects the parallel lines.



The angles shown are _____.

- same-side exterior angles
- alternate interior angles
- corresponding angles

Select the correct answer and click **SUBMIT** to check your response.

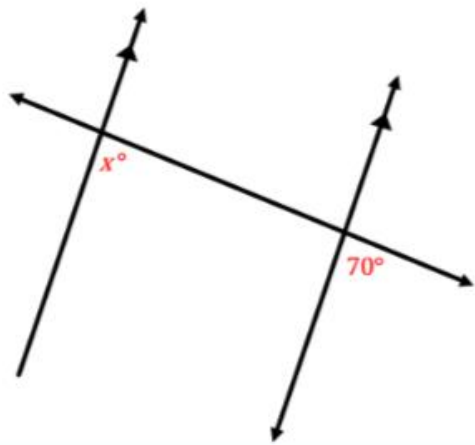
Module 2: Angles Formed by a Transversal Intersecting Parallel Lines

Topic 1 Content: Using Angle Relationships to Solve Problems

Example 2 (continued)

Example 2

Find x and y .



Continue using your knowledge of angle relationships to find x . One strategy is to focus your attention on the 70° angle and the angle with a measure of x° . It may also help to also disregard the ray that intersects the parallel lines.

The angles shown are _____.

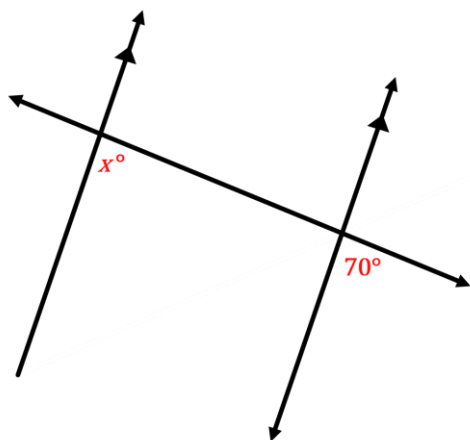
✓ corresponding angles

With respect to the parallel lines and transversal, the angles are in corresponding positions, which means they are corresponding angles.

Click **NEXT** to continue.

Next

The correct answer is *corresponding angles*. The angles shown are corresponding angles.



With respect to the parallel lines and transversal, the angles are in corresponding positions, which means they are corresponding angles.

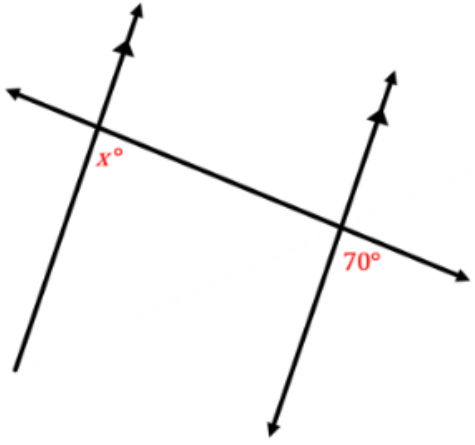
Click **NEXT** to continue.

Module 2: Angles Formed by a Transversal Intersecting Parallel Lines
Topic 1 Content: Using Angle Relationships to Solve Problems

Example 2 (continued)

Example 2

Find x and y .



The diagram shows two parallel lines intersected by a transversal. The top-left angle is labeled x° and the bottom-right angle is labeled 70° .

If a transversal intersects parallel lines, then corresponding angles are _____.

congruent
supplementary

Select the correct answer and click ***SUBMIT*** to check your response.

Submit

If a transversal intersects parallel lines, then corresponding angles are ____.

congruent
supplementary

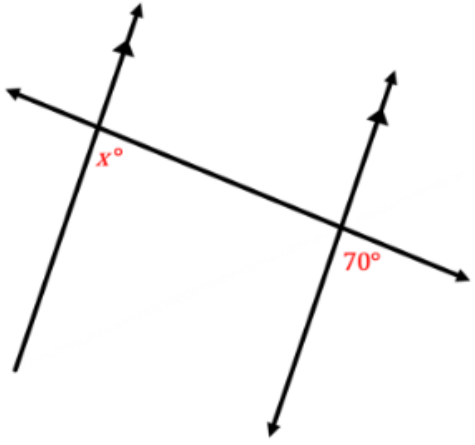
Select the correct answer and click ***SUBMIT*** to check your response.

Module 2: Angles Formed by a Transversal Intersecting Parallel Lines
Topic 1 Content: Using Angle Relationships to Solve Problems

Example 2 (continued)

Example 2

Find x and y .



The diagram shows two parallel lines intersected by a transversal. The top-left angle is labeled x° and the bottom-right angle is labeled 70° .

If a transversal intersects parallel lines, then corresponding angles are _____.

✓ congruent

If a transversal intersects parallel lines, then corresponding angles are congruent.

Click **NEXT** to continue.

Next

The correct answer is *congruent*. If a transversal intersects parallel lines, then corresponding angles are congruent.

Click **NEXT** to continue.

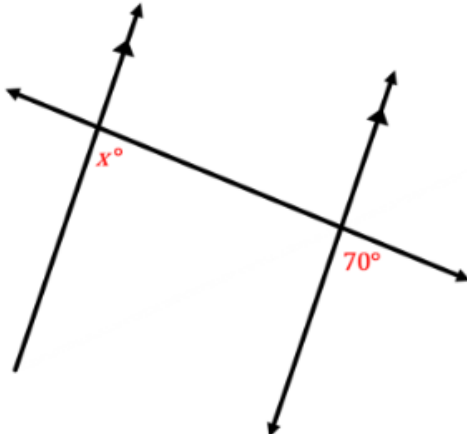
Module 2: Angles Formed by a Transversal Intersecting Parallel Lines

Topic 1 Content: Using Angle Relationships to Solve Problems

Example 2 (continued)

Example 2

Find x and y .



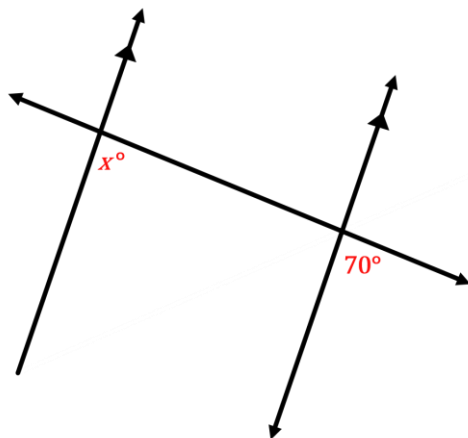
Now you can determine the value of x .

$x =$

Enter the value of x in the box above and click **SUBMIT** to check your response.


Submit

Now you can determine the value of x .



$x =$ _____

Enter the value of x in the box above and click **SUBMIT** to check your response.



25

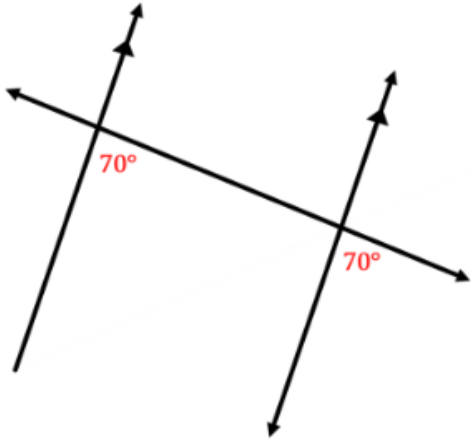
Module 2: Angles Formed by a Transversal Intersecting Parallel Lines

Topic 1 Content: Using Angle Relationships to Solve Problems

Example 2 (continued)

Example 2

Find x and y .



Now you can determine the value of x .

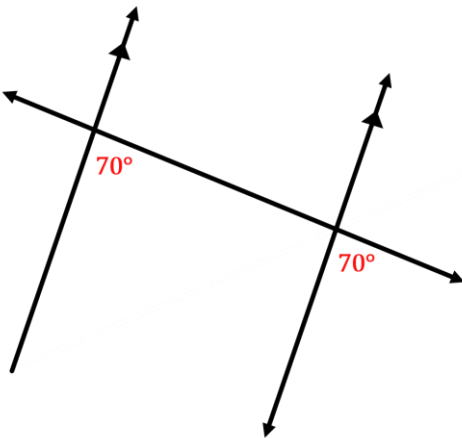
$x = 70$ ✓

Because the corresponding angles are congruent, $x = 70$.

Click **NEXT** to continue.

Next

The correct answer is 70. Because the corresponding angles are congruent, $x = 70$.



Click **NEXT** to continue.

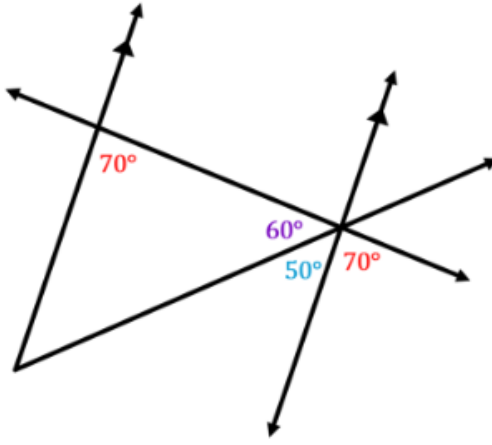
Module 2: Angles Formed by a Transversal Intersecting Parallel Lines

Topic 1 Content: Using Angle Relationships to Solve Problems

Example 2 (continued)

Example 2

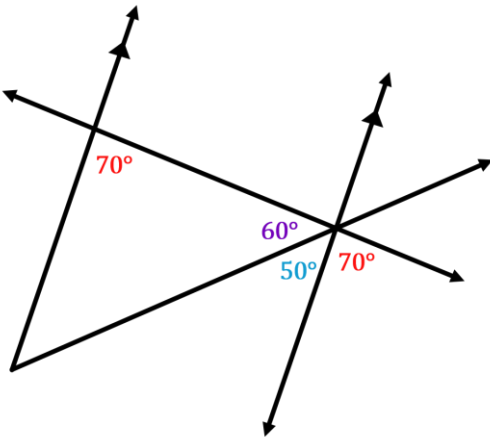
Find x and y .



Your work is complete. You have used your knowledge of angle relationships to determine that $x = 70$ and $y = 50$.

Menu

Your work is complete. You have used your knowledge of angle relationships to determine that $x = 70$ and $y = 50$.



Module 2: Angles Formed by a Transversal Intersecting Parallel Lines

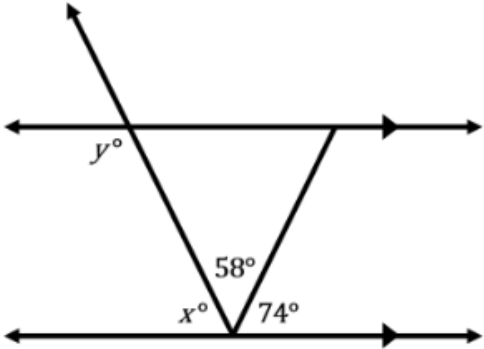
Topic 1 Content: Using Angle Relationships to Solve Problems

Self-Check

Self-Check

Given the figure below, find x and y . Then, drag and drop the correct measures next to their corresponding variables, and click **SUBMIT** to check your response.

$x = \underline{\hspace{2cm}}$ $y = \underline{\hspace{2cm}}$



48°

58°

90°

132°

180°

Submit

Solve the problem in the image above to check your understanding of the content.

Module 2: Angles Formed by a Transversal Intersecting Parallel Lines

Topic 1 Content: Using Angle Relationships to Solve Problems

Self-Check: Answer

Correct

Give the
thei

You selected the correct response. Notice that the angle with a measure of y° , the 58° angle, and the 74° angle form a straight angle. That means the sum of the measures is 180° .

$x + 58 + 74 = 180$ Angle Addition Postulate
 $x + 132 = 180$ Combine like terms.
 $x = 48$ Subtract 132 from each side.

Part 1 Part 2 Part 3 Continue

Correct

Give the
thei

To find y , you may choose to focus on these two angles.

These angles are same-side interior angles. Recall that if a transversal intersects two parallel lines, then same-side interior angles are supplementary.

$y + 48 = 180$ Same-side interior angles are supplementary.
 $y = 132$ Subtract 48 from each side.

Part 1 Part 2 Part 3 Continue

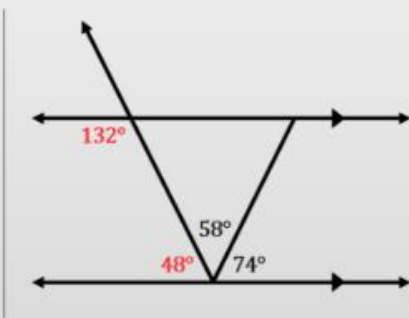
For your reference, the images above show the correct solution to the self-check problem.

Module 2: Angles Formed by a Transversal Intersecting Parallel Lines
Topic 1 Content: Using Angle Relationships to Solve Problems

Self-Check: Answer (continued)

Correct

Given the information, your work is complete. You have used your knowledge of angle relationships to determine that $x = 48$ and $y = 132$.



Part 1 Part 2 **Part 3** Continue

For your reference, the image above shows the correct solution to the self-check problem.