

keep scrolling to
get a sneak peek!

Help your PreCalculus students practice drawing **angles in standard position** and finding **positive & negative coterminal angles**. Students will be eager to get the self-checking benefits from this circuit activity!

ANGLES IN STANDARD POSITION

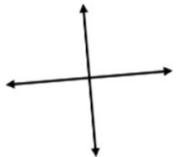
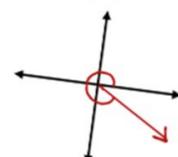
Differentiated Circuit Worksheet

ANSWER KEY

ANGLES IN STANDARD POSITION CIRCUIT

Directions: A circuit is a route that starts and ends at the same place. Start in the first box labeled 1 and solve the problem. Search through the remaining boxes for the answer you got for question 1. Now complete that question. Continue until you have completed the questions and you are back to the original question. Record your path below.

1 → 8 → 3 → 4 → 2 → 10 → 7 → 6 →

315°, -45° # _____ Previous Answer: 150°, -210° 1. Draw the angle in standard position. Find the positive & negative coterminal angles. 	2. Draw the angle in standard position. Find the positive & negative coterminal angles. -120° Positive: _____ Negative: _____	Previous Answer: $\frac{7\pi}{6}, -\frac{5\pi}{6}$ # 5 Previous Answer: 330° 1. Draw the angle in standard position. Find the positive & negative coterminal angles. $\frac{5\pi}{3}$ Positive: $\frac{5\pi}{3}$ Negative: $-\frac{\pi}{3}$ 	2. Draw the angle in standard position. Find the positive & negative coterminal angles. -315° Positive: 45° Negative: -315°
Previous Answer: $\frac{3\pi}{2}, -\frac{\pi}{2}$ # _____ 1. Draw the angle in standard position. Find the positive & negative coterminal angles.	4. Draw the angle in standard position. Find the positive & negative coterminal angles.	Previous Answer: 300°, -60° # 8 Previous Answer: 135°, -225° 3. Draw the angle in standard position. Find the positive & negative coterminal angles.	4. Draw the angle in standard position. Find the positive & negative coterminal angles.



2 versions + answer key included

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Why do you need this?



It's self-checking! Your students will know if they are correct or not.



2 differentiated versions for all students practice this essential math skill.

Angles in Standard Position Circuit Worksheet

Name: _____ Date: _____

ANGLES IN STANDARD POSITION CIRCUIT

Directions: A circuit is a route that starts and ends at the same place. Start in the first box labeled 1 and solve the problem. Search through the remaining boxes for the answer you got for question 1. Now complete that question. Continue until you have completed the questions and you are back to the original question. Record your path below.

1 → _____ → _____ → _____ → _____ → _____

Previous Answer: $\frac{7\pi}{6}, -\frac{5\pi}{6}$	# _____	Previous
1. Draw the angle in standard position. Find the positive & negative coterminal angles.		2. Draw positive
$\frac{5\pi}{3}$		-315°
Positive: _____		Positive: _____
Negative: _____		Negative: _____
Previous Answer: 300°, -60°	# _____	Previous
3. Draw the angle in standard position. Find the positive & negative coterminal angles.		4. Draw positive
495°		-750°
Positive: _____		Positive: _____
Negative: _____		Negative: _____
Previous Answer: $\frac{\pi}{6}, -\frac{11\pi}{6}$	# _____	Previous
5. Draw the angle in standard position. Find the positive & negative coterminal angles.		6. Draw positive & negative
$\frac{7\pi}{6}$		$-\frac{13\pi}{4}$
Positive: _____		Positive: _____
Negative: _____		Negative: _____

Previous Answer: 120°, -240°

7. Draw the angle in standard position. Find the positive & negative coterminal angles.

315°

Positive: _____

Negative: _____

Previous Answer: 30°, -330°

8. Draw the angle in standard position. Find the positive & negative coterminal angles.

$\frac{7\pi}{6}$

Positive: _____

Negative: _____

Previous Answer: 240°, -120°

9. Draw the angle in standard position. Find the positive & negative coterminal angles.

-270°

Positive: _____

Negative: _____

10. Draw the angle in standard position. Find the positive & negative coterminal angles.

120°

Positive: _____

Negative: _____

Helpful Hints: Use these hints to help you solve the problems.

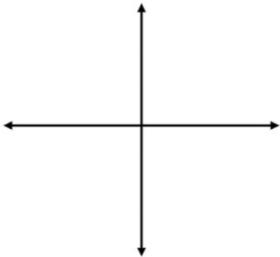
If the angle is less than 360° or 2π, then that is the positive coterminal angle.

If the angle is negative OR greater than 360°, add or subtract 360° or 2π until your answer is between 0 and 360° or 2π. That is the positive coterminal angle.

If the angle is negative OR greater than 360°, subtract 360° or 2π until your answer is between 0 and 360° or 2π. That is the negative coterminal angle.

Angles in Standard Position *includes:*

Challenge: Draw the angle 1125° in standard position. Find the positive and negative coterminal angles in degrees.



How are you feeling about this topic? Circle one:

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Helpful Hints: Use these hints to help you solve the problems.

If the angle is less than 360° or 2π , then that is the positive coterminal angle.

If the angle is negative OR greater than 360° , add or subtract 360° or 2π until your answer is between 0 and 360° or 2π . The answer is your positive coterminal angle.

To find a negative coterminal angle, subtract the positive coterminal angle by 360° or 2π .

How are you feeling about this topic? Circle one:

- ✓ 10 self-checking problems
- ✓ a detailed answer key
- ✓ a standard version with an extension question
- ✓ a basic version with helpful hints section
- ✓ student self assessment

Properties of Rational Exponents

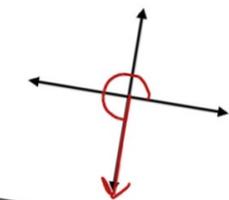
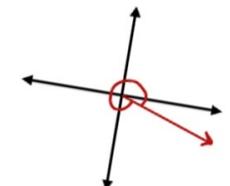
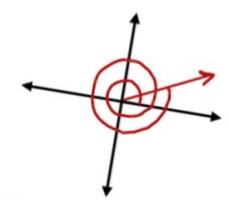
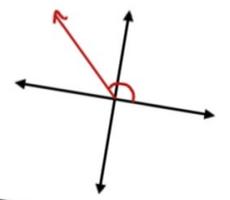
standards covered:

CCSS: HSF-TF.A.1

TEKs: P.4.B, P.4.C

VA SOLs: TCTF.T.2

ANGLES IN STANDARD POSITION CIRCUIT

Previous Answer: $\frac{2\pi}{3}, \frac{-4\pi}{3}$ 7. Draw the angle in standard position. Find the positive & negative coterminal angles. 270° Positive: <u>270°</u> Negative: <u>-90°</u> 	# 10	Previous Answer: $\frac{5\pi}{3}, \frac{-\pi}{3}$ 8. Draw the angle in standard position. Find the positive & negative coterminal angles. -420° Positive: <u>300°</u> Negative: <u>-60°</u> 	# 1
Previous Answer: $\frac{3\pi}{4}, \frac{-5\pi}{4}$ 9. Draw the angle in standard position. Find the positive & negative coterminal angles. $\frac{25\pi}{6}$ Positive: <u>$\frac{\pi}{6}$</u> Negative: <u>$-\frac{11\pi}{6}$</u> 	# 6	Previous Answer: 45°, -315° 10. Draw the angle in standard position. Find the positive & negative coterminal angles. $\frac{2\pi}{3}$ Positive: <u>$\frac{2\pi}{3}$</u> Negative: <u>$-\frac{4\pi}{3}$</u> 	# 2
Challenge: Draw the angle 1125° in standard position. Find the positive and negative coterminal angles in degrees.  1125 -360 765 1 rotation			

how this circuit resource works

Then search for their answer on the worksheet. Once the answer is found, students complete the problem below it.

Students can track their path at the top.

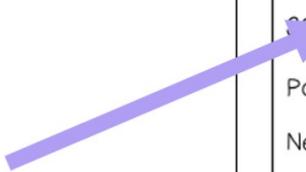
Name: _____ Date: _____

ANGLES IN STANDARD POSITION CIRCUIT

Directions: A circuit is a route that starts and ends at the same place. Start in the first box labeled 1 and solve the problem. Search through the remaining boxes for the answer you got for question 1. Now complete that question. Continue until you have completed the questions and you are back to the original question. Record your path below.

1 → _____ → _____ → _____ → _____ → _____ → _____ → _____ → _____ → 1

Previous Answer: $315^\circ, -45^\circ$ # _____	Previous Answer: $150^\circ, -210^\circ$ # _____
1. Draw the angle in standard position. Find the positive & negative coterminal angles. 330° Positive: _____ Negative: _____	2. Draw the angle in standard position. Find the positive & negative coterminal angles. -120° Positive: _____ Negative: _____
Previous Answer: $\frac{7\pi}{6}, -\frac{5\pi}{6}$ # _____	Previous Answer: $\frac{3\pi}{2}, -\frac{\pi}{2}$ # _____
3. Draw the angle in standard position. Find the positive & negative coterminal angles. $\frac{3\pi}{2}$ Positive: _____ Negative: _____	4. Draw the angle in standard position. Find the positive & negative coterminal angles. 150° Positive: _____ Negative: _____



Students start with the first question.

The last question they answer should lead back to problem #1 to “close” the circuit.

how to use this resource

Name: **Answer Key** _____ Date: _____

ANGLES IN STANDARD POSITION CIRCUIT

Directions: A circuit is a route that starts and ends at the same place. Start in the first box labeled 1 and solve the problem. Search through the remaining boxes for the answer you got for question 1. Now complete that question. Continue until you have completed the questions and you are back to the original question. Record your path below.

1 → **8** → **3** → **4** → **2** → **10** → **7** → **6** → **9** → **5** → 1

Previous Answer: $315^\circ, -45^\circ$ # 5	Previous Answer: $150^\circ, -210^\circ$ # 4
--	---

1. Draw the angle in standard position. Find the positive & negative coterminal angles.

390°

Positive: 30°

Negative: -330°

Previous Answer: $\frac{7\pi}{6}, \frac{-5\pi}{6}$

3. Draw the angle in standard position. Find the positive & negative coterminal angles.

$\frac{3\pi}{2}$

Positive: $\frac{3\pi}{2}$

Negative: $-\frac{\pi}{2}$

Previous Answer: $90^\circ, -270^\circ$

5. Draw the angle in standard position. Find the positive & negative coterminal angles.

-45°

Positive: 315°

Negative: -45°

ANGLES IN STANDARD POSITION CIRCUIT

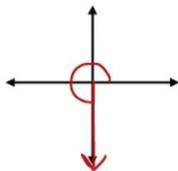
Previous Answer: $\frac{2\pi}{3}, \frac{-4\pi}{3}$ # 10	Previous Answer: $\frac{5\pi}{3}, \frac{-\pi}{3}$ # 1
--	--

7. Draw the angle in standard position. Find the positive & negative coterminal angles.

270°

Positive: 270°

Negative: -90°

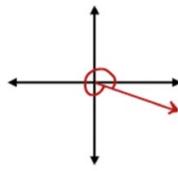


8. Draw the angle in standard position. Find the positive & negative coterminal angles.

-420°

Positive: 300°

Negative: -60°



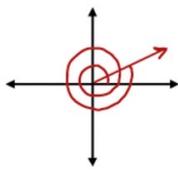
Previous Answer: $\frac{3\pi}{4}, \frac{-5\pi}{4}$ # 6	Previous Answer: $45^\circ, -315^\circ$ # 2
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9. Draw the angle in standard position. Find the positive & negative coterminal angles.

$\frac{25\pi}{6}$

Positive: $\frac{\pi}{6}$

Negative: $-\frac{11\pi}{6}$

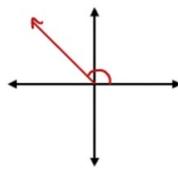


10. Draw the angle in standard position. Find the positive & negative coterminal angles.

$\frac{2\pi}{3}$

Positive: $\frac{2\pi}{3}$

Negative: $-\frac{4\pi}{3}$



Challenge: Draw the angle 1125° in standard position. Find the positive and negative coterminal angles.

This is a great activity to use when reviewing angles in standard position and finding the positive and negative coterminal angles.

It can be used right after teaching the concept or as homework.

This is also a **substitute-friendly** assignment!

You may also enjoy ...

EXACT TRIG VALUES

Algebra 2 Guided Notes

EXACT TRIGONOMETRIC RATIOS

	Quad II	Quad III	Quad IV

Directions: Draw and label the special right triangles. Show on the coordinate plane which quadrant θ is in based on the given information.

1. If $\sin \theta = \frac{\sqrt{3}}{2}$, $\cos \theta < 0$, then $\tan \theta = -\sqrt{3}$

2. If $\cos \theta = \frac{1}{2}$, $\sin \theta < 0$, then $\tan \theta = -\sqrt{3}$

3. If $\tan \theta = \frac{1}{\sqrt{3}}$, $\sec \theta > 0$ and $\csc \theta > 0$, then $\sin \theta = \frac{1}{2}$

4. If $\sec \theta > 0$ and $\csc \theta > 0$, then $\sin \theta = \frac{1}{2}$

Answer key included

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TRIGONOMETRY

Algebra 2 Guided Notes

GRAPHING SINE & COSINE FUNCTIONS

Directions: Draw and label the special right triangle. Find the exact value of the trigonometric function.

1. If $\sin \theta = \frac{\sqrt{3}}{2}$, $\cos \theta < 0$, then $\tan \theta = -\sqrt{3}$

2. If $\cos \theta = \frac{1}{2}$, $\sin \theta < 0$, then $\tan \theta = -\sqrt{3}$

3. If $\tan \theta = \frac{1}{\sqrt{3}}$, $\sec \theta > 0$ and $\csc \theta > 0$, then $\sin \theta = \frac{1}{2}$

Answer key included

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ANGLES & RADIANS

Algebra 2 Guided Notes

RADIAN MEASURES

The measure of an angle in standard position whose terminal side intersects the x-axis at a point (a, 0) is called the **reference angle**.

Directions: Find one positive and negative coterminal angle for each given original and coterminal angles on the graph.

1. 40°

2. 150°

3. -60°

Positive: 400°
Negative: -320°

Positive: 610°

Answer key included

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Answer Key
Name: _____ Date: _____
ADDING & SUBTRACTING RATIONAL EXPRESSIONS
Directions: Simplify each rational expression. Show your work.

Solving Systems of Equations
Date: _____
Solve each system of equations using substitution or elimination. Check your solution.
 $2x - 6y = -18$
 $x = 3y - 9$
 $4x + 6y = -1$
 $y = -2x + 3$
 $y = 2 + 5$
 $y = 7$
 $(2, 7)$
 $2(3y - 9) - 6y = -18$
 $6y - 18 - 6y = -18$
 $-18 = -18$
infinitely many solutions

Multiplying & Dividing Rational Expressions
Date: _____
Directions: Multiply or divide the rational expressions. Show your work.

Rational Expression Operations - Addition & Subtraction
Directions: Answer each question and type the question number with the matching answer in the answer column to the right.

#	Question	Answer	Type the matching question numbers here
1	$\frac{5}{x} + \frac{3}{x+1}$	$\frac{2x+1}{x+2}$	
2	$\frac{2}{x+4} - \frac{x^2}{x^2-16}$	$-\frac{1}{x^2-1}$	
3	$\frac{x+2}{x^2+4x+4} + \frac{2x}{x+2}$	$\frac{2x^2+2x+5}{x^2+x-2}$	
4	$\frac{x}{x-2} + \frac{3}{x-1}$	$-\frac{x^2+2x-8}{x^2-16}$	
5	$\frac{x}{4x+8} - \frac{1}{x^2+2x}$	$\frac{8x+5}{x^2+1}$	
6	$\frac{x+2}{x-1} + \frac{x-1}{x+2}$	$\frac{x^2-3x+7}{x^2-4}$	
7	$\frac{2x+1}{x^2-4} + \frac{x-3}{x+2}$	$\frac{x^2+2x-6}{x^2-3x+2}$	
8	$\frac{x^2+2x}{x^2-1} - \frac{x+1}{x-1}$	$\frac{x-2}{4x}$	

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hey there!

My name is Malia and I'm passionate about making learning and practicing math fun. I love creating engaging math resources for my students and I hope your students enjoy this activity too!

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