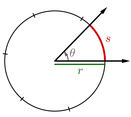
7.2

This assignment is past the original due date of Fri 02/12/2021 11:59 pm. You have used a LatePass.
Due in 5 hours, 8 minutes. Due Sun 02/14/2021 11:59 pm

Instructional videos on Mod. 7, lsv. 2 (Converting Between Radians and Degrees) found in the Pathways PreCalculus online textbook. If you are not logged into rationalreasoning.net, you will be asked to log in prior to accessing the videos.

TIP: Picture First! For many questions, it is helpful to visualize what is happening, so try drawing a picture for each question before trying to answer it.

Consider the diagram shown below, which shows a circle centered at an angle's vertex where r is the circle's radius length (in some unit), s is the length of the subtended arc (in the same unit), and θ is the angle's radian measure.



a. Write a formula expressing θ in terms of s and r.

$\theta =$ s/r Preview

b. Write a formula expressing s in terms of θ and r. (Enter "theta" for θ.)

$s =$ r*theta Preview

Submit

Question 1. Points possible: 2 License
Unlimited attempts.
Score on last attempt: 2. Score in gradebook: 2

For each of the following angles, assume that the terminal ray of the angle opens up in the counter-clockwise direction.

a. A circle with a radius 6 cm long is centered at Angle A's vertex, and Angle A subtends an arc length of 9.6 cm along this circle.

i. The subtended arc is how many times as long as the circle's radius?

9.6/6 Preview

ii. Therefore, the radian measure of Angle A is:

9.6/6 radians Preview

b. A circle with a radius 16 cm long is centered at Angle B's vertex, and Angle B subtends an arc length of 96 cm along this circle. What is the radian measure of Angle B?

6 radians Preview

c. A circle with a radius 2 inches long is centered at Angle C's vertex, and Angle C subtends an arc length of 0.7854 inches along this circle. What is the radian measure of Angle C?

0.3927 radians Preview

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Question 2. Points possible: 4 License
Unlimited attempts.
Score on last attempt: 4. Score in gradebook: 4

For each of the following angles, assume that the terminal ray of the angle opens up in the counter-clockwise direction.

a. Angle A has a measure of 0.7 radians. A circle with a radius length of 7 cm is centered at Angle A's vertex.

The arc subtended by Angle A (along this circle) is 0.7 times as long as the circle's radius. Therefore, the length of the subtended arc is:

4.9 cm Preview

b. Angle B has a measure of 2.5 radians. A circle with a radius length of 2.6 cm is centered at Angle B's vertex. What is the length of the subtended arc along this circle?

6.5 cm Preview

c. Angle C has a measure of $\frac{\pi}{3}$ radians. A circle with a radius length of 11 inches is centered at Angle C's vertex. What is the length of the subtended arc along this circle?

11pi/3 inches Preview

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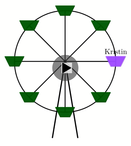
Question 3. Points possible: 4 License
Unlimited attempts.
Score on last attempt: 4. Score in gradebook: 4

Kristin boards a Ferris wheel at the 3-o'clock position and rides the Ferris wheel for one full rotation (as shown below). The radius of the Ferris wheel is 9 meters. Imagine an angle with a vertex at the center of the Ferris wheel that subtends the arc along which Kristin travels.



a. If Kristin travels 12.6 meters, what is the angle's measure in radians?

12.6/9 radians Preview

b. If Kristin travels 24.3 meters, what is the angles' measure in radians?

24.3/9 radians Preview

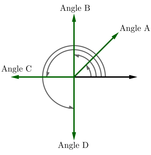
c. Let s represent the varying number of meters that Kristin has traveled since the Ferris wheel started rotating. Write an expression that represents the varying measure of the angle (in radians).

s/9 Preview

Submit

Question 4. Points possible: 3 License
Unlimited attempts.
Score on last attempt: 3. Score in gradebook: 3

Four angles are shown below. Recall that there are 360 degrees in one full rotation.



a. Angle A is $\frac{1}{8}$ of a full rotation and therefore Angle A has a measure of 45 degrees. Preview

Correct! Since Angle A is $\frac{1}{8}$ of a full rotation and there are 360 degrees in a full rotation, the measure of Angle A is $\frac{1}{8} \cdot 360 = 45$ degrees.

b. Angle B is 1/4 of a full rotation and therefore Angle B has a measure of 90 degrees. Preview

Correct! Since Angle B is $\frac{1}{4}$ of a full rotation and there are 360 degrees in a full rotation, the measure of Angle B is $\frac{1}{4} \cdot 360 = 90$ degrees.

c. Angle C is 1/2 of a full rotation and therefore Angle C has a measure of 180 degrees. Preview

Correct! Since Angle C is $\frac{1}{2}$ of a full rotation and there are 360 degrees in a full rotation, the measure of Angle C is $\frac{1}{2} \cdot 360 = 180$ degrees.

d. Angle D is 3/4 of a full rotation and therefore Angle D has a measure of 270 degrees. Preview

Correct! Since Angle D is $\frac{3}{4}$ of a full rotation and there are 360 degrees in a full rotation, the measure of Angle D is $\frac{3}{4} \cdot 360 = 270$ degrees.

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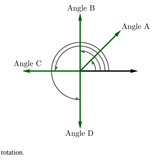
Question 5. Points possible: 4 License
Unlimited attempts.
Score on last attempt: 4. Score in gradebook: 4

Four angles are shown below. Recall that an angle completing a full rotation measures 2π radians.



a. Angle A represents 1/8 of a full rotation.

Correct! Angle A represents $\frac{1}{8}$ of a full rotation.

Therefore, Angle A has a measure of pi/4 radians. Preview

Correct! Since Angle A represents $\frac{1}{8}$ of a full rotation and an angle completing one full rotation measures 2π radians, the measure of Angle A is $\frac{1}{8} \cdot 2\pi = \frac{\pi}{4}$ radians.

b. Angle B represents 1/4 of a full rotation.

Correct! Angle B represents $\frac{1}{4}$ of a full rotation.

Therefore, Angle B has a measure of pi/2 radians. Preview

Correct! Since Angle B represents $\frac{1}{4}$ of a full rotation and an angle completing one full rotation measures 2π radians, the measure of Angle B is $\frac{1}{4} \cdot 2\pi = \frac{\pi}{2}$ radians.

c. Angle C represents 1/2 of a full rotation.

Correct! Angle C represents $\frac{1}{2}$ of a full rotation.

Therefore, Angle C has a measure of pi radians. Preview

Correct! Since Angle C represents $\frac{1}{2}$ of a full rotation and an angle completing one full rotation measures 2π radians, the measure of Angle C is $\frac{1}{2} \cdot 2\pi = \pi$ radians.

d. Angle D represents 3/4 of a full rotation.

Correct! Angle D represents $\frac{3}{4}$ of a full rotation.

Therefore, Angle D has a measure of 3pi/2 radians. Preview

Correct! Since Angle D represents $\frac{3}{4}$ of a full rotation and an angle completing one full rotation measures 2π radians, the measure of Angle D is $\frac{3}{4} \cdot 2\pi = \frac{3\pi}{2}$ radians.

Get help: Video

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Question 6. Points possible: 4 License
Unlimited attempts.
Score on last attempt: 4. Score in gradebook: 4

A point starts at the location (5, 0) and travels 12.75 units CCW along a circle with a radius of 5 units that is centered at (0, 0). Consider an angle whose vertex is at (0, 0) and whose rays subtend the path that the point traveled. Draw a diagram of this to make sure you understand the context.

a. What is the radian measure of this angle?

12.75/5 radians Preview

b. What is the degree measure of this angle?

146.104 degrees Preview

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Question 7. Points possible: 2 License
Unlimited attempts.
Score on last attempt: 2. Score in gradebook: 2

Total Points Possible: 23

When you are done, click here to see a summary of your score