

Learning Targets:
 ✓ Find the length of an arc of a circle
 ✓ Find the area of a sector of a circle

- Circumference is the distance around the circle. (It is the circle's perimeter.)
- Area is the space inside of the circle

Circumference of a Circle	Area of a Circle
$C = 2\pi r$	$A = \pi r^2$
where, r is the <u>radius</u>	

1) Find the circumference and area of the circle below. Leave your answer in terms of π .



$C = 2\pi r$	$A = \pi r^2$
$= 2\pi(5)$	$= \pi(5)^2$
$= 10\pi$ inches	$= 25\pi$ square inches

2) Find the area of a circle that has a circumference of 36π cm.

$C = 2\pi r$	$A = \pi r^2$
$36\pi = 2\pi r$	$= \pi(18)^2$
$18 = r$	$= 324\pi$ square inches

3) The diameter of a monster truck wheel (including the tire) is about 1.7 meters. How many meters will the monster truck travel if the wheel rotates 1000 times? Use $\pi = 3.14$.

Need 1000 times the circumference $r = \frac{1}{2}(1.7) = 0.85$

$C = 2\pi r$	$1000(5.338) = 5338$ meters
$= 2(3.14)(0.85)$	
$= 5.338$	

- Arc length is a linear measurement similar to the length of a line segment.

Arc Measure	Arc Length
Measured in: <u>degrees</u>	Measured in: <u>linear units (cm, in, m, etc.)</u>
A fractional part of the: <u>360° of a circle</u>	A fractional part of the: <u>circumference</u>
Proportion to Find Arc Length $\frac{\text{Arc Length}}{2\pi r} = \frac{\text{Arc Measure}}{360^\circ}$	

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Applications Of Arc Length And Sectors Answer Key

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Applications Of Arc Length And

We can think of arc length as the distance you would travel if you were walking along the path of the curve. Many real-world applications involve arc length. If a rocket is launched along a parabolic path, we might want to know how far the rocket travels. Or, if a curve on a map represents a road, we might want to know how far we have to drive to reach our destination.

1.5: Arc Length of a Curve and Surface Area - Mathematics ...

This video provides a basic example of arc length and then solve an application problem involving the distance the earth travels around the sun in one month....

Examples: Arc Length and Application of Arc Length - YouTube

Applications of Arc Length and Sectors Guided Practice: 1. Draw a diagram of a circle with a radius of 8 units and a sector formed by a central angle of 30°. Find the arc length and area of the sector. Round to the nearest tenth. 2. This is the first year Janis is playing softball. She has been practicing her batting. On her last

Applications of Arc Length and Sectors - CISD

This arc length calculator is a tool that can calculate the length of an arc and the area of a circle sector. In this article, we explain the arc length formula in applications of arc length and greatest minds and 26 13 page 1 of 3 applications of arc length and sectors a sector of a circle is a region of the circle bounded

Applications of arc length circle length

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Calculus II - Arc Length

The length of the arc is given by $s = r\theta$. First we must convert 165.58° into radians: $165.58^\circ = 165.58 \times \pi/180 = 2.8899$ radians. So arc length is: $s = 1.875 \times 2.8899 = 5.419$ cm. So the perimeter of the cam is: $2 \times 1.875 + 5.419 = 9.169$ cm.

8. Applications of Radian Measure

Summing over all subintervals gives an arc length approximation $\int_a^b \sqrt{dx^2 + dy^2}$. As shown here, this is not a Riemann Sum. While we could conclude that taking a limit as the subinterval length goes to zero gives the exact arc length, we would not be able to compute the answer with a definite integral. We ...

6.4: Arc Length and Surface Area - Mathematics LibreTexts

Applications of Arc Length and Sectors Guided Practice: 1. Draw a diagram of a circle with a radius of 8 units and a sector formed by a central angle of 30°. Find the arc length and area of the sector. Round to the nearest tenth. 2. This is the first year Janis is playing softball. She has been practicing her batting. On her last swing the bat made an arc with a radius of 4 feet and ...

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On this lesson, you will learn how to use the arc length formula and the area of a sector formula (sector area formula) to solve real world problems. For mor...

ARC LENGTH FORMULA & AREA OF SECTOR FORMULA PRACTICE ...

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