

The Circumference Of A Circle

Introduction

The circumference of a circle is the distance around the edge of the circle. It can be thought of as the perimeter of the circle.

Key Formula

The circumference C of a circle is calculated using the following formula: $C = 2\pi r$

where r is the radius of the circle and π (pi) is approximately 3.14

Alternatively, if you know the diameter d of the circle (where $d = 2r$), the formula becomes: $C = \pi d$

Worked Example

A circle has a radius of 5 cm. What is its circumference?

Solution:

Using the formula $C = 2\pi r$: $C = 2 \times \pi \times 5 = 10\pi \approx 31.42$ cm

1. What is the circumference of a circle with a radius of 7 cm?

- a) 14 cm
- b) 21.99 cm
- c) 44 cm
- d) 43.98 cm

2. A circle has a diameter of 12 cm. What is its circumference?

- a) 37.70 cm
- b) 18.85 cm
- c) 75.40 cm
- d) 24 cm

Fill in the Blank Questions

- 1. The formula for the circumference of a circle in terms of radius is _____.
- 2. If the diameter of a circle is 20 cm, then the circumference is _____.

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True/False Questions

1. True or False: The value of π is exactly 3.
2. True or False: The circumference of a circle increases as its radius increases.

Short Answer Questions

1. Explain in your own words what the circumference of a circle represents.
2. How would you find the circumference if you only know the diameter?

Problem Solving

1. A bicycle wheel has a radius of 32 cm. How far does it travel in one complete revolution? Give your answer to two decimal places.
2. The circumference of a circular pond is 62.8 metres. What is its diameter? (Use $\pi = 3.14$)

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Answer Key

Multiple Choice Answers

1. d) 43.98 cm
2. a) 37.70 cm

Fill in the Blank Answers

1. $C = 2\pi r$
2. 62.83 cm

True/False Answers

1. False – The value of π is approximately 3.1416, not exactly 3.
2. True

Short Answer Answers

1. The circumference is the total distance around the edge of the circle.
2. Multiply the diameter by π : $C = \pi d$.

Problem Solving Answers

1. Distance = Circumference = $2 \times \pi \times 32 = 201.06$ cm
2. Diameter = Circumference $\div \pi = 62.8 \div 3.14 = 20$ metres