



Student Name: _____

Class: _____

Due Date: _____

Introduction to Perimeter

English: Welcome to our homework assignment on perimeter! In this worksheet, we will learn about the concept of perimeter and how to calculate it for different shapes.

普通话: 欢迎来到我们的周长作业!在这个工作表中,我们将学习周长的概念以及如何计算不同形状的周长。

Activity 1: Perimeter of Squares and Rectangles

English: Calculate the perimeter of the following squares and rectangles:

- A square with a side length of 5cm
- A rectangle with a length of 6cm and a width of 4cm

普通话: 计算以下正方形和矩形的周长:

- 边长为5cm的正方形
- 长度为6cm,宽度为4cm的矩形

Perimeter of Squares and Rectangles (continued)

English: Show your calculations and explain your answers.

普通话: 展示你的计算过程并解释你的答案。

Example: If a square has a side length of 4cm, what is its perimeter?

例子: 如果一个正方形的边长为4cm,其周长是多少?

Formula: $\text{Perimeter} = 2 \times (\text{length} + \text{width})$

公式: $\text{周长} = 2 \times (\text{长度} + \text{宽度})$

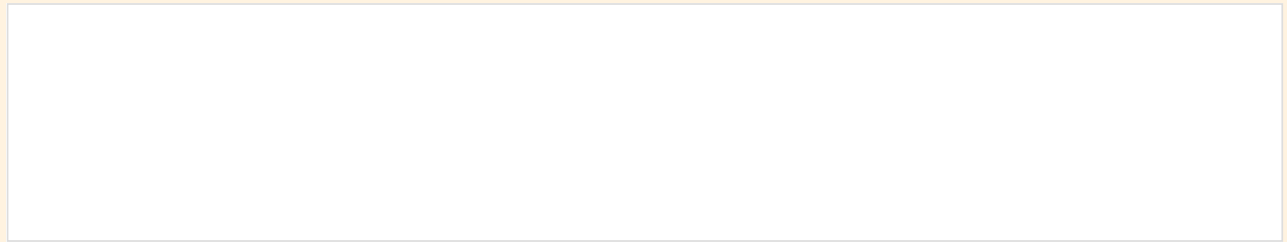
Perimeter of Triangles

English: Calculate the perimeter of the following triangles:

- An equilateral triangle with a side length of 6cm
- An isosceles triangle with two sides of 5cm and one side of 7cm

普通话: 计算以下三角形的周长:

- 边长为6cm的等边三角形
- 两边为5cm,一边为7cm的等腰三角形



Formula: $\text{Perimeter} = \text{side1} + \text{side2} + \text{side3}$

公式: 周长 = 边1 + 边2 + 边3

Perimeter of Triangles (continued)

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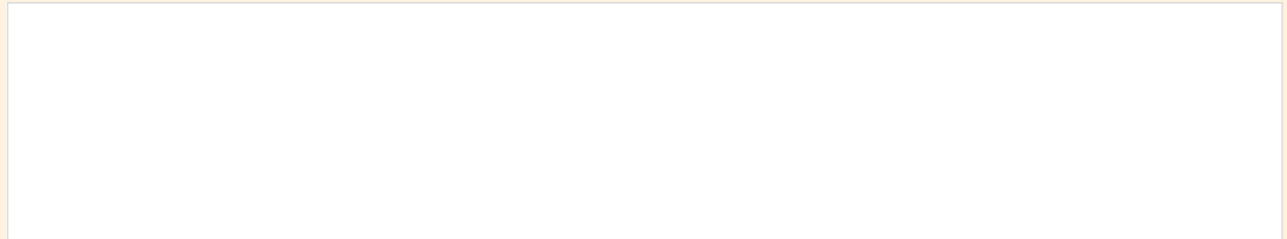
Example: If an equilateral triangle has a side length of 5cm, what is its perimeter?

例子: 如果一个等边三角形的边长为5cm,其周长是多少?

Real-World Scenarios

English: A garden has a rectangular shape with a length of 10m and a width of 8m. A path that is 1m wide is built around the garden. Calculate the perimeter of the garden and the path.

普通话: 一个花园是矩形,长度为10m,宽度为8m。在花园周围建了一条1m宽的路。计算花园和路的周长。



Formula: Perimeter = $2 \times (\text{length} + \text{width})$

公式: 周长 = $2 \times (\text{长度} + \text{宽度})$

Real-World Scenarios (continued)

English: Show your calculations and explain your answers.

普通话: 展示你的计算过程并解释你的答案。

Example: If a rectangular garden has a length of 12m and a width of 10m, what is its perimeter?

例子: 如果一个矩形花园的长度为12m,宽度为10m,其周长是多少?

Extension Activity 1 - Design a Shape

English: Design a regular polygon with a specific perimeter. Calculate the side lengths and explain how you arrived at your answer.

普通话: 设计一个具有特定周长的规则多边形。计算边长并解释你的计算过程。

Example: Design a square with a perimeter of 20cm. What is the side length of the square?

例子: 设计一个周长为20cm的正方形。正方形的边长是多少?

Extension Activity 2 - Real-World Application

English: Research and find examples of regular shapes in real-world architecture or design. Calculate the perimeter of these shapes and explain their significance.

普通话: 研究并找到现实世界建筑或设计中的规则形状例子。计算这些形状的周长并解释其重要性。

Example: Find an example of a building that uses regular shapes in its design. Calculate the perimeter of the shape and explain its significance.

例子: 找到一个在设计中使用规则形状的建筑。计算形状的周长并解释其重要性。

English: Review your work and check for accuracy. Reflect on your understanding of perimeter and regular shapes. Identify areas for improvement and develop a plan to address them.

普通话: 审查你的工作并检查准确性。反思你对周长和规则形状的理解。确定需要改进的领域并制定一个计划来解决它们。

Questions:

- What did you learn about perimeter and regular shapes?
- What challenges did you face during this assignment?
- What would you like to learn more about in the future?

Conclusion

English: Congratulations on completing this homework assignment! You have learned about the concept of perimeter and how to calculate it for different shapes. Remember to apply your knowledge to real-world scenarios and continue to practice your problem-solving skills.

普通话: 恭喜你完成了这个作业!你已经学习了周长的概念以及如何计算不同形状的周长。记得将你的知识应用于现实世界的情景并继续练习你的解决问题的技能。

Advanced Concepts

In this section, we will explore advanced concepts related to perimeter and regular shapes. We will delve into the world of geometry and discover how to calculate the perimeter of complex shapes, such as triangles, quadrilaterals, and polygons.

Case Study: Calculating the Perimeter of a Triangle

A triangle has three sides, and each side has a length. To calculate the perimeter of a triangle, we need to add up the lengths of all three sides. For example, if a triangle has sides of length 5cm, 6cm, and 7cm, the perimeter would be $5 + 6 + 7 = 18\text{cm}$.

Example: Calculating the Perimeter of a Quadrilateral

A quadrilateral has four sides, and each side has a length. To calculate the perimeter of a quadrilateral, we need to add up the lengths of all four sides. For example, if a quadrilateral has sides of length 4cm, 5cm, 6cm, and 7cm, the perimeter would be $4 + 5 + 6 + 7 = 22\text{cm}$.

Real-World Applications

Perimeter and regular shapes have many real-world applications. For example, architects use perimeter to design buildings and bridges, while engineers use it to design roads and highways. In this section, we will explore some of the real-world applications of perimeter and regular shapes.

Case Study: Designing a Bridge

When designing a bridge, engineers need to calculate the perimeter of the bridge to ensure that it is stable and safe. They use the formula for perimeter to calculate the total length of the bridge and then use that information to determine the materials needed to build it.

Example: Designing a Building

When designing a building, architects need to calculate the perimeter of the building to ensure that it is energy efficient and safe. They use the formula for perimeter to calculate the total length of the building and then use that information to determine the materials needed to build it.

Problem-Solving Strategies

In this section, we will explore problem-solving strategies for perimeter and regular shapes. We will learn how to use formulas and algorithms to solve problems and how to apply mathematical concepts to real-world situations.

Case Study: Solving a Perimeter Problem

A rectangle has a length of 6cm and a width of 4cm. What is the perimeter of the rectangle? To solve this problem, we can use the formula for perimeter: $P = 2(l + w)$, where P is the perimeter, l is the length, and w is the width.

Example: Solving a Regular Shape Problem

A triangle has three sides of length 5cm, 6cm, and 7cm. What is the perimeter of the triangle? To solve this problem, we can use the formula for perimeter: $P = a + b + c$, where P is the perimeter, and a , b , and c are the lengths of the sides.

Assessment and Evaluation

In this section, we will discuss assessment and evaluation strategies for perimeter and regular shapes. We will learn how to assess student understanding and evaluate student performance using a variety of methods, including quizzes, tests, and projects.

Case Study: Assessing Student Understanding

A teacher wants to assess student understanding of perimeter and regular shapes. The teacher can use a quiz or test to evaluate student performance and identify areas where students need additional support.

Example: Evaluating Student Performance

A teacher wants to evaluate student performance on a project that involves designing a bridge using perimeter and regular shapes. The teacher can use a rubric to assess student performance and provide feedback on areas such as design, calculation, and presentation.

Conclusion

In conclusion, perimeter and regular shapes are important concepts in mathematics that have many real-world applications. By understanding how to calculate perimeter and apply mathematical concepts to real-world situations, students can develop problem-solving skills and critical thinking abilities that will serve them well in their future careers.

Case Study: Real-World Application

A company that designs and builds bridges needs to calculate the perimeter of the bridge to ensure that it is stable and safe. The company uses the formula for perimeter to calculate the total length of the bridge and then uses that information to determine the materials needed to build it.

Example: Future Careers

Students who understand perimeter and regular shapes can pursue careers in fields such as architecture, engineering, and design. They can use their knowledge of mathematical concepts to design and build structures that are safe, efficient, and aesthetically pleasing.

Glossary

In this section, we will define key terms related to perimeter and regular shapes. We will learn about the different types of shapes, including triangles, quadrilaterals, and polygons, and we will explore the formulas and algorithms used to calculate perimeter.

Case Study: Defining Key Terms

A student is unsure of the definition of the term "perimeter." The student can look up the definition in a dictionary or online resource and learn that perimeter refers to the distance around a shape.

Example: Understanding Formulas

A student is struggling to understand the formula for perimeter. The student can practice using the formula to calculate the perimeter of different shapes and can watch online videos or tutorials to help clarify the concept.

References

In this section, we will provide references for further reading and study. We will include books, articles, and online resources that provide more information on perimeter and regular shapes.

Case Study: Finding Resources

A student is looking for more information on perimeter and regular shapes. The student can search online for resources such as Khan Academy, Mathway, or Wolfram Alpha, or can visit a library to find books and articles on the topic.

Example: Using Online Resources

A student is using an online resource to learn more about perimeter and regular shapes. The student can watch video tutorials, practice problems, and take quizzes to assess their understanding of the material.



PLANIT
TEACHERS

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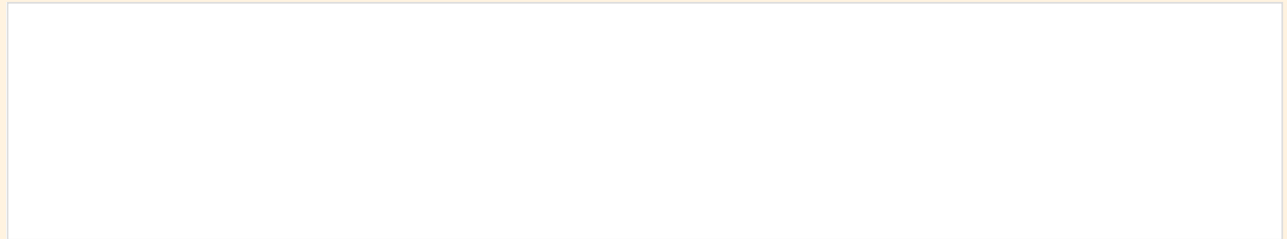
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Well done on completing your homework children!