Understanding Sine, Cosine, and Tangent Functions

Introduction to Trigonometry

Read the introduction to trigonometry and answer the following questions:

1. What is trigonometry?
2. What are the three main functions in trigonometry?

Understanding Sine, Cosine, and Tangent

Read the definitions of sine, cosine, and tangent and answer the following questions:

1. What is the sine of an angle?
2. What is the cosine of an angle?
3. What is the tangent of an angle?

Practice Questions

Solve the following practice questions:

1. In a right-angled triangle, the length of the hypotenuse is 10 cm and the length of the side opposite the angle is 6 cm. What is the sine of the angle?
2. In a right-angled triangle, the length of the side adjacent to the angle is 8 cm and the length of the hypotenuse is 10 cm. What is the cosine of the angle?
3. In a right-angled triangle, the length of the side opposite the angle is 5 cm and the length of the side adjacent to the angle is 12 cm. What is the tangent of the angle?

Real-World Applications

Read about the real-world applications of trigonometry and answer the following questions:

1. How is trigonometry used in navigation?
2. How is trigonometry used in physics?
3. How is trigonometry used in engineering?

Activities

Complete the following activities:

1. Create a diagram of a right-angled triangle and label the sides.
2. Use a calculator to calculate the sine, cosine, and tangent of an angle.
3. Research and present on a real-world application of trigonometry.

Assessment

Complete the following assessment tasks:

1. Complete the practice questions on page 1.
2. Complete the activities on page 2.
3. Research and present on a real-world application of trigonometry.

Extension

Complete the following extension tasks:

1. Create a project that applies trigonometry to a real-world scenario.
2. Research and present on a historical figure who contributed to the development of trigonometry.
3. Create a game or puzzle that involves trigonometry.

Glossary

Define the following terms:

1. Hypotenuse
2. Opposite side
3. Adjacent side

Answer Key

Check your answers with the following solutions:

1. $\sin(\theta) = 6/10 = 0.6$
2. $\cos(\theta) = 8/10 = 0.8$
3. $\tan(\theta) = 5/12 = 0.42$