PLANIT TEACHERS

Trigonometry Assessment Worksheet

Introduction

This worksheet is designed to assess students' understanding of trigonometric concepts, specifically the definitions and applications of sine, cosine, and tangent.

Section 1: Multiple Choice Questions

Choose the correct answer for each question.

1. What is the definition of the sine ratio in a right triangle?
    1. A) The ratio of the opposite side to the hypotenuse
    2. B) The ratio of the adjacent side to the hypotenuse
    3. C) The ratio of the opposite side to the adjacent side
    4. D) The ratio of the hypotenuse to the opposite side
2. Which trigonometric ratio is equal to the ratio of the opposite side to the hypotenuse?
    1. A) Sine
    2. B) Cosine
    3. C) Tangent
    4. D) Cotangent
3. If the measure of an angle in a right triangle is 30 degrees, what is the measure of its complementary angle?
    1. A) 60 degrees
    2. B) 45 degrees
    3. C) 90 degrees
    4. D) 120 degrees

Section 2: Short Answer Questions

Show all work and explain your answers.

1. In a right triangle, the length of the hypotenuse is 10 cm and the length of the adjacent side is 6 cm. Find the length of the opposite side using the cosine ratio.

2. A surveyor measures the angle of elevation to the top of a building and finds it to be 45 degrees. If the distance from the surveyor to the building is 20 meters, how tall is the building? Use the tangent ratio to solve the problem.

Section 3: Essay Question

Explain your answer in complete sentences.

1. Explain the relationship between the sine, cosine, and tangent functions. How do these functions relate to each other, and how can they be used to solve real-world problems? Provide examples to support your answer.

Section 4: Word Problems

Show all work and explain your answers.

1. A ship is sailing due east at a speed of 20 km/h. If the wind is blowing at an angle of 30 degrees north of east, what is the component of the wind velocity in the direction of the ship's motion? Use trigonometry to solve the problem.

2. A ladder is leaning against a wall at an angle of 60 degrees. If the length of the ladder is 5 meters, how far is the base of the ladder from the wall? Use trigonometry to solve the problem.

Section 5: Graphing

Graph the functions and label the x and y axes.

1. Graph the function y = sin(x) for 0 ≤ x ≤ 360 degrees. Label the x and y axes and identify the amplitude and period of the function.

2. Graph the function y = cos(x) for 0 ≤ x ≤ 360 degrees. Label the x and y axes and identify the amplitude and period of the function.

Conclusion

This worksheet is designed to assess students' understanding of trigonometric concepts and their ability to apply them to solve problems.

Reflection

Reflect on what you have learned and what you would like to learn more about.

1. What was the most challenging part of this worksheet for you?

2. What would you like to learn more about in the future?