Trigonometry Homework Sheet

Student Name: _____

Class: _____

Due Date: _____

Introduction

Welcome to the trigonometry homework sheet! This worksheet is designed to help you practice and apply the concepts learned in the trigonometry lesson. Please complete all the questions and activities to the best of your ability.

Section 1: Multiple Choice Questions

1. What is the definition of sine, cosine, and tangent in a right-angled triangle?

1. a) Sine = opposite side/hypotenuse, Cosine = adjacent side/hypotenuse, Tangent = opposite side/adjacent side
2. b) Sine = adjacent side/hypotenuse, Cosine = opposite side/hypotenuse, Tangent = adjacent side/opposite side
3. c) Sine = hypotenuse/opposite side, Cosine = hypotenuse/adjacent side, Tangent = hypotenuse/opposite side
4. d) Sine = opposite side/adjacent side, Cosine = adjacent side/opposite side, Tangent = hypotenuse/opposite side

2. What is the value of sin(30°)?

1. a) 1/2
2. b) 1/√3
3. c) √3/2
4. d) 2/√3

3. What is the value of cos(60°)?

1. a) 1/2
2. b) 1/√3
3. c) √3/2
4. d) 2/√3

Section 2: Short Answer Questions

1. What is the difference between sine, cosine, and tangent? Provide an example of each.

2. What is the relationship between the sine, cosine, and tangent of an angle in a right-angled triangle? Use a diagram to illustrate your answer.

Section 3: Word Problems

1. A building is 50 meters tall. If the angle of elevation from the ground to the top of the building is 60°, how far is the building from the point of observation?

2. A car is traveling at a speed of 60 km/h. If the angle of elevation from the car to the top of a hill is 30°, how far is the car from the base of the hill?

Section 4: Graphing

1. Graph the function y = sin(x) for 0 ≤ x ≤ 360°.

2. Graph the function y = cos(x) for 0 ≤ x ≤ 360°.

Section 5: Proofs

1. Prove that sin(2x) = 2sin(x)cos(x).

2. Prove that cos(2x) = 2cos^2(x) - 1.

Section 6: Applications

1. A surveyor is measuring the height of a building. If the angle of elevation from the ground to the top of the building is 45°, and the distance from the point of observation to the base of the building is 20 meters, what is the height of the building?

2. A pilot is flying an airplane at an altitude of 10,000 meters. If the angle of elevation from the pilot to the horizon is 30°, how far is the pilot from the point on the ground directly below the airplane?

Conclusion

Congratulations on completing the trigonometry homework sheet! Remember to check your answers and review any concepts that you struggled with. Good luck with your studies!