Instructions

Read each question carefully and provide your answers in the space provided. Show your work where necessary.

1. Basic Trigonometric Ratios

Using a right triangle, if the length of the opposite side is 3 units and the length of the hypotenuse is 5 units, calculate:

a) The sine of the angle θ (sin θ).

b) The cosine of the angle θ (cos θ).

c) The tangent of the angle θ (tan θ).

2. Solving for an Angle

Find the measure of angle θ if:

a) sin θ = 0.5

b) cos θ = 0.6

c) tan θ = 1.

3. Word Problem

A ladder is leaning against a wall. The foot of the ladder is 4 feet from the wall, and the ladder reaches a height of 3 feet on the wall. Find the angle θ between the ground and the ladder.

4. Trigonometric Identities

Complete the following identities by filling in the blanks:

a) $\sin^2 \theta + \cos^2 \theta =$

b) $\tan \theta = \sin \theta / \cos \theta$

c) $1 + \tan^2 \theta =$

5. Graphing Trigonometric Functions

Sketch the graph of the sine function for one complete cycle (0 to 2π). Describe its amplitude and period.