PLANIT TEACHERS

Student Name: _____	**Class:** _____
Student ID: _____	**Date:** {{DATE}}

Assessment Details

Duration: 45 minutes	**Total Marks:** 60
Topics Covered:	• Sine, Cosine, and Tangent Ratios • Right Triangle Trigonometry • Real-World Applications

Instructions to Students:

1. Read all questions carefully before attempting.
2. Show all working out - marks are awarded for method.
3. Calculator use is permitted except where stated otherwise.
4. Write your answers in the spaces provided.
5. If you need more space, use the additional pages at the end.
6. Time management is crucial - allocate approximately 1 minute per mark.

Question 1 [2 marks]

What is the definition of the sine ratio in a right triangle?

A) The ratio of the adjacent side to the hypotenuse

B) The ratio of the opposite side to the hypotenuse

C) The ratio of the adjacent side to the opposite side

D) The ratio of the hypotenuse to the adjacent side

Question 2 [2 marks]

Which trigonometric ratio is equal to the ratio of the opposite side to the hypotenuse?

A) Sine

B) Cosine

C) Tangent

D) Cotangent

Question 3 [2 marks]

If the measure of an angle in a right triangle is 30 degrees, what is the measure of its complementary angle?

A) 60 degrees

B) 45 degrees

C) 90 degrees

D) 30 degrees

Question 4 [2 marks]

What is the cosine ratio of an angle in a right triangle with an adjacent side of 6 cm and a hypotenuse of 10 cm?

A) 0.6

B) 0.8

C) 0.4

D) 0.2

Question 5   [2 marks]

Which of the following is an example of a real-world application of trigonometry?

A) Building design

B) Medical research

C) Financial analysis

D) All of the above

Question 6 [4 marks]

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.

Question 7 [4 marks]

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.

Question 8 [4 marks]

A right triangle has an angle of 60 degrees and an opposite side of 8 cm. Find the length of the hypotenuse using the sine ratio.

Question 9 [4 marks]

In a right triangle, the length of the hypotenuse is 15 cm and the length of the opposite side is 9 cm. Find the length of the adjacent side using the sine ratio.

Question 10 [4 marks]

A surveyor measures the angle of elevation to the top of a building and finds it to be 30 degrees. If the distance from the surveyor to the building is 15 meters, how tall is the building? Use the tangent ratio to solve the problem.

Section C: Essay Question [20 marks]

Question 11 [20 marks]

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.

Conclusion

This assessment is designed to evaluate students' understanding of trigonometric concepts and their ability to apply them to solve problems. The assessment includes multiple choice questions, short answer questions, and an essay question to cater to different learning styles and abilities.