DAILY LESSON LOG OF M9GE-IVe-1 (DAY TWO)

School	Grade Level 9
Teacher	Learning Area MATHEMATICS
Teaching Date and Time	Quarter Fourth (4 th)
I. OBJECTIVES	Objectives must be met over the week and connected to the curriculum standards. To meet the objectives, necessary procedures must be followed and if needed, additional lessons, exercises and remedial activities may be done for developing content knowledge and competencies. These are assessed using Formative Assessment Strategies. Valuing objectives support the learning of content and competencies and enable children to find significance and joy in learning the lessons. Weekly objectives shall be derived from the curriculum guides.
A. Content Standards	The learner demonstrates understanding of the basic concepts of trigonometry.
B. Performance Standards	The learner is able to apply the concepts of trigonometric ratios to formulate and
C. Learning Competencies/ Objectives	 solve real life problems with precision and accuracy. Learning Competency: Use trigonometric ratios to solve real-life problems involving right triangles. (M9GE–IVe–1) 1. Identify the trigonometric ratios used to solve real-life situations or problems. 2. Solve for the measures of the unknown sides and angles of right triangle Use trigonometric ratios. 3. Shows interest in doing the tasks.
II. CONTENT	Solving Real-life Problems Using Trigonometric Ratios on a Right Triangles.
III. LEARNING RESOURCES A. References	
A. References 1. Teacher's Guide pages	Pages 292-297
2. Learner's Materials pages	Pages 460-464
	Empowering through Math by C. Dacanay pages 289-295
1 0	Grade 9 Mathematics by G. Nivera and M.R. Lapinid pages 449-460
4. Additional Materials from Learning Resource (LR) portal	
B. Other Learning Resources	Activity sheets for dependent learning and Worksheets for independent learning,
IV. PROCEDURES	These steps should be done across the week. Spread out the activities appropriately so that pupils/students will learn well. Always be guided by demonstration of learning by the pupils/ students which you can infer from formative assessment activities. Sustain learning systematically by providing pupils/students with multiple ways to learn new things, practice the learning, question their learning processes, and draw conclusions about what they learned in relation to their life experiences and previous knowledge. Indicate the time allotment for each step.
A. Review previous lesson or presenting the new lesson	As a review, the teacher asks the students, in group of three, answer the activity items 1 – 4 found on page 462 of the Learner's Module. Activity 3: Draw My Problem! Objective To develop your accuracy in illustrating the pictures presented by the information in the given word problems. Materials: Ruler, protractor, and drawing materials Directions: 1. Look for a partner. 2. Draw the pictures presented by the information in the problems given. (These problems don't ask for an answer.) 3. Assume that buildings, ladders, etc. are all on level ground. 4. Clear, neat, and accurate illustrations are necessary. 1. The angle of elevation of the top of the building is 65°. 3. If an airplane that is cruising at an altitude of 9 km wants to land at NAIA, it must begin its descent so that the angle of depression to the airport is 7°. Answer key: 1. 3. 30.5 mm 3. 30.5 mm 4. Abird sits on top of a 5-meter lamppost. The angle of depression from the bird to the feet of an observer standing away from the lamppost is 35°.

The teacher lets the students realize that illustrating the angle of elevation B. Establishing a purpose for and angle of depression is an important skill in solving real-life problems the lesson involving right triangles. The teacher lets the students, in groups of three, do the Activity 4: Illustrate and Solve! found on pages 463 – 464 of the Learner's Module. ➤ Activity 4: Illustrate and Solve! What is/are given? Formula used The angle of elevation from a boat to the top of a 92-meter hill is 12°. How far is the befrom the base of the hill? From the top of the control tower 250 m tall, an airplane is sighted on the ground below, the airplane is 170 m from the base of the tower, find the angle of depression of the airplan from the top of the control tower. From the top of a cliff 280 meters high, the angle of depression of a boat is 25°. How far from the base of the cliff is the boat? From an airplane at an altitude of 1200 m, the angle of depression to a rock on the ground measures 28°. Find the horizontal distance from the plane to the rock. **Answer Key:** $\tan \theta = \frac{\text{opposite}}{\text{adjacent}}$ $\tan \theta = \frac{12}{19}$ $\tan \theta = 0.6316$ $\theta = \tan^{-1} 0.6316$ C. Presenting examples/ A = 32 28° instances of the new lesson ∴ The angle of elevation of the sun is 32° 17' tan 12° = opposite $tan 12^{\circ} = \frac{92}{d}$ d tan 12° = 92 $d = \frac{92}{\tan 12^{\circ}}$ $d = \frac{92}{0.2126}$ d = 432.83 mThe distance of the boat from the base of the hill is 432.83 meters. $\tan \theta = \frac{250}{170}$ $\tan \theta = 1.47$ $\theta = \tan^{-1} 1.47$ $\theta = 55.78^{\circ}$ $\theta = 55^{\circ}47$ ⊕ = 55-47' The angle of depression of the rock $d = \frac{280}{0.4663}$ d = 600.47 mtan 28° = 1200 tan 28° 1200 n d = 2256.87 m . The distance of the rock from the plane is 2256.87 m meters. The teacher discusses with the students the process of arriving at the D. Discussing new concepts answer of each item. Furthermore, the teacher asks the students about and practicing new skills the mathematical skills or principles that they used in solving real-life problem involving right triangle. Working in pairs, the teacher provides another activity using applying the angle of depression and elevation to solve real-life problem involving right triangle. Discussing new concepts and practicing new skills Read, analyze and solve the problems below. Show your solution. #2 Problem: 1. An escalator has an angle of elevation of $10^{\it o}$ and a vertical rise of 6 m. Find the length of the escalator.

	Answer Key: $\theta = \frac{opposite}{hypotenuse}$ $10^{0} = \frac{6}{x}$ $x = \frac{6}{\sin\sin 10^{0}}$ $x = 34.55$ So, the length of the escalator is approximately 34.55 meters.
F. Developing mastery (leads to formative assessment 3)	• The teacher gives another activity for the students to perform individually. This will allow the students to demonstrate learning. Read, analyze and solve the problems below. Show your solution. 1. A hiker is 400 meters away from the base of the radio tower. The angle of elevation to the top of the tower is 46°. How high is the tower? 2. Answer Key: $\theta = \frac{opposite}{adjacent}$ $\tan tan\ 46^0 = \frac{x}{400}$ $46^0) = x$ $= x$ Therefore, the height of the tower is approximately 414.21 meters.
G. Finding practical applications of concepts and skills in daily living	
H. Making generalizations and abstractions about the lesson	 The teacher summarizes the mathematical skills or principles used to solve problems on trigonometric ratios. What mathematical principles or skills did you use in solving the distance or length of an object and the angle formed from the two given objects? Applying the concept of angle of elevation and depression to the problem with the help of the six trigonometric ratios. Answers can be drawn from the students.
I. Evaluating Learning	The teacher lets the students answer individually the formative assessment. Read, analyze, illustrate and solve the problem below. Show your solution. Problem: 1. An airplane is flying in a horizontal straight line towards an airport. Find its altitude at the moment when the angle of depression is 6° and the plane is 100 miles away from its destination. Answer Key: Let θ the reference angle. $\sin \sin \theta = \frac{opposite}{hypotenuse}$

1. Additional activities or remediation	
V. REMARKS	
VI. REFLECTION	Reflect on your teaching and assess yourself as a teacher. Think about your students' progress. Wha works? What else needs to be done to help the pupils/students learn? Identify what help you instructional supervisors can provide for you so when you meet them, you can ask them relevan questions.
A. No. of learners who earned of the evaluation	30%
B. No. of learners who red additional activities remediation who scored be 80%	for
C. Did the remedial lesson w No. of learners who have ca up with the lesson.	••••
D. No. of learners who continured require remediation	e to
E. Which of my teaching strate worked well? Why did t work?	²
F. What difficulties did I encou which my principal or super can help me solve?	
G. What innovation or loca materials did I use/ disc which I wish to share with of teachers	over