

Southern Leyte State University - Main Campus  
College of Engineering

Math 100 (Pre-Calculus)

Module Two  
TRIGONOMETRY PART 2

C02. Demonstrate knowledge on the different problem solving topics of trigonometry.

ILO3. Solve acute triangle related problems

ILO4. Solve oblique triangle related problems



Enabling Learning Outcomes:

1. Evaluate right triangle related problem using different angle perceptions.
2. Apply the Sine and Cosine Law in solving oblique triangle related problems.

Overview

In this module, you will be able to enhance your problem solving skills. You will be identifying, evaluating and creating solution to an acute and oblique triangle related problems.

Access the self-paced learning material entitled “SPLM #2 Trigonometry Part 2” together with this module and also uploaded on the Facebook Group: **Bridging Course 2020**.



Task #1 Multiple Choice (Acute Triangles)

**Direction:** Solve the following problems. Write your solutions on a long bond paper. Emphasize your final answer by writing it inside a box.

1. From a point, 10 ft above the water, the angle of elevation of a light house is  $46^\circ$  and the angle of depression of its image in the water is  $50^\circ$ . Find the horizontal distance of the light house from the observer.  
a. 138 ft      b. 54 ft      c. 128 ft      d. 288 ft
2. From the top of tower A, the angle of elevation of the top of the tower B is  $46^\circ$ . From the foot of tower B, the angle of elevation of the tower A is  $28^\circ$ . Both tower are of the same level ground. If the height of tower B is 120 m, how high is tower A.  
a. 56.28 m      b. 126.5 m      c. 136.28 m      d. 40.71 m
3. An airplane is flying in a straight line towards an airfield at a fixed altitude. At one point the angle of depression to the airfield is  $32^\circ$ . After flying 2 more miles, the angle of depression is  $74^\circ$ . What is the distance (nearest tenth of a mile) between the airplane and the airfield when the angle of depression is  $74^\circ$ .  
a. 1.6      b. 1.4      c. 0.5      d. 2.1
4. The angle of elevation of a point C from point B is  $29^\circ 42'$ ; the angle of elevation of C from another point A (31.2 m below B) is  $59^\circ 23'$ . How high is C from the horizontal line through A?  
a. 51.9 m      b. 47.1 m      c. 56.3 m      d. 41.4 m



## Task #2 Problem Solving (Oblique Triangles)

**Direction:** Solve the following problems. Write your solutions on a long bond paper. Emphasize your final answer by writing it inside a box.

1. The sides of a triangular lots are 130m, 180m, and 190m. The lot is to be divided by a line bisecting the longest side and drawn from the opposite vertex. Determine the length of this dividing line. **Ans 149 m**
2. An equilateral triangular field has side equals to 2 meters each. If the field is divided into two equal areas by a line parallel to one side, compute the length of the dividing line. **Ans 1.41m**
3. An airplane leaves an aircraft carrier and flies south at 350 mph. the carrier travels S  $30^\circ$  E at 25 mph. If the wireless communication range of the airplane is 700 miles, after how many hours will it lose contact with the carrier? **Ans 2.13hrs**
4. Stations A and B are 100 apart and are on the same elevation as the foot of a tower. The angles of elevation of the top of the tower from stations A and B are  $21^\circ$  and  $32^\circ$  respectively. How far is station B from the tower? **Ans 160 m**
5. A tree stands vertically on a hillside which makes an angle of  $22^\circ$  with the horizontal. From a point 60 ft down the hill directly from the base of the tree, the angle of elevation of the top of the tree is  $55^\circ$ . How high is the tree? **Ans. 56.97 ft**

END!!!

### Requirements on answering:

1. Write your solutions and answers on a **long bond paper**.
2. On the upper left of the bond paper, write your **full name** and **under it is your course**.  
Ex. JUAN DE LA CRUZ, JR.  
BSEE
3. On the upper center, write the **Module number and title**  
Ex. Module #1 – Trigonometry Part 1
4. On the upper right, write the **date you have started** the exercises and affix your **signature right next to it**.
5. Bottom center, write the **page number** (applicable to two or more pages only)

### **Method on sending your answers**

1. Take a **clear picture** of your output per page.  
*(For clearer results, use “CamScanner” app available on Google Play/App Store)*
2. Rename your outputs with the following format: Surname\_Task #\_Page #  
  
Ex. Telin\_Task1\_Page1
3. If you have many pages, please organize on sending your outputs.  
*(Page 2 should be sent after page 1)*
4. Upload your outputs to Task Submission bins found in every module.
5. Deadline: **September 23, 2021 | 11:59 pm**

Annex A.

**RUBRIC IN PROBLEM SOLVING**

| CATEGORY                      | 4                                                                                                   | 3                                                                                                       | 2                                                                                                    | 1                                                                                                                         |
|-------------------------------|-----------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------|
| <b>Mathematical Concepts</b>  | Explanation shows complete understanding of the mathematical concepts used to solve the problem(s). | Explanation shows substantial understanding of the mathematical concepts used to solve the problem(s).  | Explanation shows some understanding of the mathematical concepts needed to solve the problem(s).    | Explanation shows very limited understanding of the underlying concepts needed to solve the problem(s) OR is not written. |
| <b>Mathematical Reasoning</b> | Uses complex and refined mathematical reasoning.                                                    | Uses effective mathematical reasoning                                                                   | Some evidence of mathematical reasoning.                                                             | Little evidence of mathematical reasoning.                                                                                |
|                               |                                                                                                     |                                                                                                         |                                                                                                      |                                                                                                                           |
| <b>Mathematical Errors</b>    | 90-100% of the steps and solutions have no mathematical errors.                                     | Almost all (85-89%) of the steps and solutions have no mathematical errors.                             | Most (75-84%) of the steps and solutions have no mathematical errors.                                | More than 75% of the steps and solutions have mathematical errors.                                                        |
|                               |                                                                                                     |                                                                                                         |                                                                                                      |                                                                                                                           |
| <b>Use of Manipulatives</b>   | Student always listens and follows directions and only uses manipulatives as instructed.            | Student typically listens and follows directions and uses manipulatives as instructed most of the time. | Student sometimes listens and follows directions and uses manipulatives appropriately when reminded. | Student rarely listens and often \"plays\" with the manipulatives instead of using them as instructed.                    |

**Rating Scale:**

4      1.0 - 1.5

3      1.6 - 2.5

2      2.6 - 3.0

1      3.1 - 3.5      **Conditional**