

## Unit 3 TRIG Assignment | Problem Solving With Trigonometry

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In this assignment, you will use trigonometry to model & eventually solve 2 types of problems. One set of problems is geometry based (to relate to our second unit on coordinate geometry) and the second set of problems will be applications based - you will do some simplistic surveying. In both types of problems, the key strategy will be to understand how right triangles can be used to model & visualize problems & their solutions. The problems will then be solved using the trigonometric ratios.

Requirements for the presentation of the work in your assignment:

- A. **FIRST**: Always start with a clearly labeled diagram
  
- B. **SECOND**: Outline a plan that you intend to follow. In Problem Set A, you will briefly outline the keys steps that you need to work through & a brief rational (reason) for WHY you need to work through a given key step. In Problem Set B, you will require a second component to your plan: that being a plan on HOW TO DO THE SURVEYING, in order to get the relevant data/measurements.
  
- C. **THIRD**: Carry out your plan in collecting the relevant measurements and then carry out your calculations.
  
- D. **FOURTH**: Write your conclusions (which will just be the measures of your angles in Problem Set A and your heights/distances in Problem Set B)

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### Problem Set A - Coordinate Geometry Based Problems - Do ONE of these QUESTIONS

1. (A LEVEL QUESTION) You will be given the coordinates of four points on the coordinate plane and you need to use trigonometry to determine the measure of all four interior angles.
2. (A<sup>+</sup> LEVEL QUESTION) You will be given the equations of 4 lines and then you will eventually need to use trigonometry to determine the measure of all four interior angles of the quadrilateral formed in the interior of the 4 lines.

### Problem Set B - Surveying Applications of Trigonometry - DETERMINE THE HEIGHT OF TWO BUILDINGS ON CAMPUS

1. (A LEVEL QUESTION) Design a method of determining the height of one of the field lights on the soccer field (or tree - actual object to be assigned by the teacher) and then go outside and survey to gather your data and solve the problem. Method must be approved before you may leave to survey.
2. (A<sup>+</sup> LEVEL QUESTION) Design a method of determining the height of one of the light stands near the track (or tree - actual object to be assigned by the teacher). NOTE: All data measurements must be done from WITHIN the soccer field. Then go outside and survey to gather your data and solve the problem. Method must be approved before you may leave to survey.
3. (BONUS CHALLENGE QUESTION) Design a method of determining the height and length of the HS building. NOTE: All data measurements must be done from WITHIN the soccer field. Then go outside and survey to gather your data and solve the problem. Method must be approved before you may leave to survey.

All work will be graded using the following [linked grading rubric](#)