***Role***:  You are a consultant for a property acquisitions and development company.

***Task***:  Read the attached document. The document is the description of a property that your company may or may not purchase to develop into a shopping center. It is your job to provide your client with accurate information so that they can make an informed decision.

* Create a diagram of the property (it need not be to scale). On your diagram show the measurements of all five interior angles: A, B, C, D and E. You are encouraged to use colors highlight key measurements of your diagram.
* Calculate the exact area of the tract and the cost to develop the property.
* You have discovered that in order to develop the property, the company will have to run a gas line from the Marker C to Marker E and a water line from Marker C to Marker A (which is also the beginning point of the survey).  Report the exact lengths of the gas and water lines to the nearest hundredth and calculate their cost.
* Write written report. Your report will be written as a letter to the Vice President of Property Acquisition. Your report should be no longer than one side of one page. It should by typed/proofread and should include a professional description of your methods for determining the angles/side lengths. Also please reference the total costs to develop the land, water line and gas line (and the total cost of the entire project).

***You will submit four pages for this project****.*

1. Cover page with name, date and period
2. Written Report (see above for details)
3. The diagram with all angles and sides lengths labeled. Make sure the gas and water lines are clearly labeled. Title this page Appendix A
4. The calculations. They must be NEATLY handwritten and organized. Please clearly label each calculation so that it can be easily related to the diagram. Do not forget to include calculations for the costs associated with the project. Title this page appendix B.

***Hint on finding the area***:

* To find the area, split the irregular pentagon up into three triangles.  Use the laws of sines and cosines to find the lengths of the sides you construct.  Find the area of each triangle using the area formulas that you learned in lesson 3.8.  Then add the areas of the three triangles.  **Show all of your work in the report**, but remember that the vice president, though an intelligent person, is not a math major, so make it clear enough for him/her to read and understand.

Please attach these directions (and rubric on the back) so that I can complete your grades

**SCHEDULE A – LEGAL DESCRIPTION**

Beginning at the first survey marker, A, proceed 227.0 feet due South to marker B. At marker B, turn due West and proceed 127.0 feet to marker C. At marker C, turn on a bearing of N 13.2° W and proceed 151.2 feet to marker D. At marker D, turn on a bearing of N 42o E and proceed 122.6 feet to marker E. At marker E, turn on a bearing of S 81.9o E and proceed 80.3 feet, which returns to the point of beginning (marker A).

The cost of the land is $250 per square foot.

The cost of the gas line is $1,025 per foot

The cost of the water line is $775 per foot.

**Rubric:**

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
|  | Not Done | Poor | Fair | Good | Excellent |  |
| Sketch with internal angles | 0 | 1 | 2 | 3 | 4 |  |
| Length of Gas /water lines | 0 | 1 | 2 | 3 | 4 |  |
| Calculations of Area/costs | 0 | 1 | 2 | 3 | 4 |  |
| Write-up | 0 | 1 | 2 | 3 | 4 |  |
| Professionalism | 0 | 1 | 2 | 3 | 4 |  |
| TOTAL |  |  |  |  |  |  |