

# Civil Engineering Township Planning Contract

Contract Absolute Due Date: \_\_\_\_\_

This Page Must Be Handed In as The Cover Page of your submission.

Dear \_\_\_\_\_ :  
*insert your name*

On behalf of the Regional Municipal Township of Warden, we want to thank you for helping us plan our township's infrastructure. You have agreed to locate the best place for a hospital, a telecommunications tower, an ambulance station, and a major roadway.

Our plan requires that:

1. Our hospital be built equal distance from each of our three towns; Danforth, Eglinton and Finch.
2. Our telecommunications tower is to be built at the centroid of the triangle which is created by these three towns.
3. Construction on Highway 445, which will join Eglinton and Finch, has already begun. We would like an ambulance station to be built along this highway so that it is the shortest possible distance to the town of Danforth. A two lane road from Danforth to the ambulance station will be constructed and named County Road 62.

Your report to the township must include:

1. **Electronic Part** - a scaled diagram, labelling each town, the hospital, the tower, the ambulance station, Highway 445 and County Road 62. You must do this on **GeoGebra**. You must submit your .ggb file electronically. (If you are running the web version of GeoGebra, you must double click on the grid so that the entire program pops up. Save your work as a .ggb file.)
2. **Written Part** - all of your calculations, with each analytic geometry step neatly printed (by hand) in an organized fashion. All numbers should be rounded off to the nearest hundredth of a kilometer (**two decimal places**). You must transfer some of your answers to the report table at the back of this page and make this page as the cover page of your report.

Because of time and budget constraints, failure to submit your report by the contract due date may result in you not being compensated. Also, you must ensure that you read this contract carefully to ensure that you have completed all of the agreed upon work in the proper manner. Failure to do so will result in a loss of compensation.

To make your calculations easier, we suggest that **you put Danforth at the origin. Eglinton is 40 km west and 25 km north of Danforth. Finch is 30 km east and 15 km north of Danforth.**

Thank-you,

Regional Township Administer, Warden

***Report Table***

Coordinates of the Hospital	Coordinates of Telecommunications Tower	Coordinates of Ambulance Station	Length of County Road 62	Distance from the Hospital to each town (should be the same for each)
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**For Official Use Only:**

**Remuneration Table**

*Note: Level 0 (0-49%) will be awarded if non-meaningful response is provided in a category.*

Level 1 50-59%	Level 2 60-69%	Level 3 70-79%	Level 4 80-100%
<b>Thinking</b>			
The student: - attempts to make simple mathematical arguments  - applies the steps of an inquiry/problem solving process with limited effectiveness	-follows arguments of moderate complexity and makes simple arguments  - applies the steps of an inquiry/problem solving process with moderate effectiveness	- follows arguments of considerable complexity, judges the validity of arguments, and makes arguments of some complexity  - applies the steps of an inquiry/problem solving process with considerable effectiveness	- follows complex arguments, judges the validity of arguments, and makes complex arguments  - applies the steps of an inquiry/problem solving process with a high degree of effectiveness and poses extending questions