Math 105—Calculus I Project 3
in and out of the gutter...

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It is said that success breeds further success, and the recent experience of the IMC, Inc. consulting firm appears to bear this out. After several exceedingly lucrative contracts, further contracts are pouring in. As you eye your departure from IMC for greener pastures (all mathematical, of course), you have one final contract to address—the pièce de résistance, as it were. (In?)Appropriately enough, it concerns gutters, and has been submitted by Welbilt Design and Construction, Inc. (rumored to be surreptitiously owned by the MPC, Inc. conglomerate), a construction and architecture company based in the thriving metropolis of Lonlinc, Skanebra. The letter you received on the subject is attached.

Welbilt Design and Construction, Inc.

6533 Haybaler Highway
Lonlinc, SK
04685

7 April, 1996

Independent Mathematical Contractors, Inc.
Suite 2, Strawmarket Business Plaza
Lonlinc, SK 04685

Dear IMC:

Welbilt Design and Construction has recently begun the construction of a series of carefully designed, eminently safe new office buildings in a development immediately outside of the southern boundary of Lonlinc. At the last minute, however, the subcontractor we had working on the design of the gutters for the roofs of building has pulled out, so we are contacting your firm to determine the optimum gutter design for the development.

An optimum gutter will, of course, carry a maximum amount of water, and our design constraints require that it be manufactured from a 12 inch wide piece of material (which we can order in the lengths required to line different roof sections).

We therefore have contacted you to find the gutter design(s) which will carry the most water from the roof. Because we have already begun the construction of the office buildings, we unfortunately require a fairly speedy response from you, and therefore expect your report to be submitted by the 29th of April. If you have questions as you work to resolve the problem, we hope you will avail yourselves of the assistance of the estimable Dr. Gavin LaRose, whom we have hired as a technical consultant for the project of erecting the office buildings. You must in any event notify him of your progress on two occasions, on or before the 15th and 22nd of April.

For your reference, we have included a copy of our requirements for technical documents. We look forward to seeing your finished report.

Yours sincerely,

Frankyl O. Y. Drite
President, Welbilt Inc.

Encl: Technical report requirements

Welbilt Design and Construction, Inc.

Technical Report Requirements

All reports submitted to Welbilt, Inc. should be written so that the forewomen and foremen of the construction unit implementing the report can understand and apply the information contained therein. Owing to Welbilt's preeminent position in the construction field all of our forepeople have degrees in engineering, and thus have had college level mathematics, including calculus—unfortunately, however, their long experience in the field precludes a ready knowledge of the same. Therefore, the reports should assume a strong precalculus and basic calculus (about half a semester of calculus I) background, but should not expect a knowledge of much more than that.

Reports should further:

- Be written in the first person plural (e.g., "We found the requisite data from the figure. . . ").
- Include mathematical formulas and figures in the the text of the body of the report as appropriate to describe the methods and results obtained. (While the report must be typewritten, it is fine to neatly hand-write formulas and figures if that significantly simplifies its generation.)
- Clearly explain how the mathematical formulas that are included bear on the problem being solved.
- Consist of
  - An *Introduction*, describing the problem to be solved, and an indication of the mathematical method used to solve it.
  - A *Body*, describing the mathematical problem that was solved to answer the question(s) posed in the introduction, and the solution to it.
  - A *Conclusion*, summarizing the results obtained from the solution described in the body and clearly stating their relevance to the original problem as described in the introduction.
- Be $2\frac{1}{2}$–5 pages in length.