



## Monday cup #19

**Posted on:** August, 5, 2019

**Due on:** August, 11, 2019



### **Problem**

**Question:** The cog railway at Pike's Peak (<https://www.youtube.com/watch?v=aoLcEx9-BDo>) leaves the station in Manitou Springs at an altitude of 6,571 feet and climbs to an altitude of 14,110 feet at its summit. The average grade is 16 percent. Determine the total length of the track from the station to the summit and compute the angle of elevation (using a 16% average grade).

There was no correct solution to problem 17

### Rules

1. Anyone is eligible to participate. Each solution is to be the work of one individual without any input from faculty or others. An answer must be accompanied by appropriate justifications to be considered correct.
2. The solution is to be submitted with the solver's name, email, year in school (if applicable), local phone number, and local address. If you are submitting this for possible credit in a class, include your class number and instructors name.
3. The solution is to be typed or legibly written. Solutions must be submitted to the by 2 p.m. on the due date.
4. Entries will be graded on clarity of exposition and elegance of solution. An award of **GEL10** will be given for the best correct solution. In the case of a two-way tie, the award will be split. If there are more than two best solutions, a drawing will be held to determine two award winners.
5. Graduate students, faculty, and members of the general public are encouraged to submit solutions, but they will not be considered.

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Solution for this problem can be submitted [proveweek@gmail.com](mailto:proveweek@gmail.com)