

2.2 Percent Grade Practice

Round lengths to the nearest hundredth and angles, percent grade to the nearest whole

1. One of the steepest railways in the world is the Lisbon tram in Portugal. In one section, it has a grade of 13.5%.
 - a) Express this as a slope.
 - b) Calculate the angle of elevation.
2. Heckman Pass is a very steep section of highway connecting Anahim Lake and Bella Coola, BC. At its steepest section, it rises 900 m over a run of 5 km. What is the percent grade of this section?
3. A wheelchair ramp is being built to rise to a landing that is 2.4 m above the ground. Building regulations say that the ramp can have a maximum rise of 2.5 cm per 30 cm of run.

- a) How long will the ramp be?
 - b) What is the angle of elevation of the ramp?
4. Joel drove his truck 3 km along a road. During this drive, his altitude increased from 982 m to 1257 m.
- a) What horizontal distance did he travel?
 - b) What was the percent grade of the road?

5. One straight section of road rises from an elevation of 1070 m to 1132 m. The run is approximately 1.3 km. What is the percent grade of the road?

6. Shelby is installing a pipe for drainage. The system requires a drop of 1.5 cm for every 25 m of horizontal distance.
 - a) What is the slope of the pipe?

 - b) How much drop will she need if the horizontal distance is 12 m?

 - c) What is the angle of elevation of the pipe?

 - d) Express the slope as a percent grade

