Measuring Elevation Profiles using an Auto Level

Name _____

Description:

Land measurement is a useful skill in agriculture used for construction, farming, and grading. In this activity you will use a auto level to measure elevations.

Materials:

Graph paper (10 sq/inch)

Tools:

Auto Level and Philadelphia Rod

Tape

Surveyor's arrows (pins)

Directions:

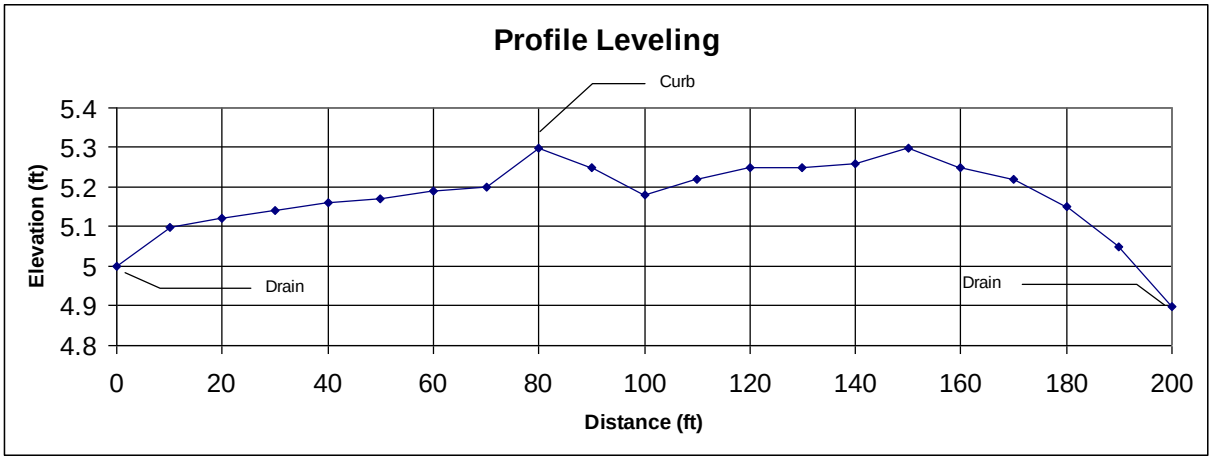
Profiles are used to determine slopes for irrigation, drainage, and building layout. In this exercise you will measure elevations using a level then graph the profile.

1. Layout the profile course as a team. Rotate the using the rod during your elevation measurements.
2. Setup up the laser level mid-way between the ends of the profile
3. Using the tape, locate, mark, and measure 20-25 points between the ends of the profile. Record these distances in the table below.
4. Place the rod on the starting point Benchmark (BM) and take the Backsight (B.S.). Record this elevation on your data sheet and calculate the Height of Instrument (H.I.).
5. Measure the Foresights (F.S.) of each of the remaining points and enter on your data sheet. Calculate the elevation of each point.
6. Individually, use graph paper plot the elevations. Horizontal scale will be about 1"=20', vertical scale should be about 2"=1'. Label the points and the graph. (See example).
7. Label the high point(s).
8. Turn in your **data sheet and graph.**

Useful Formulas

H.I. = B.S. + Elevation
Elevation = H.I. – F.S.

Sample Profile Graph



Name: _____

Auto Level Profile Leveling Data Sheet

Station Number	Distance (ft)	B.S.	H.I.	F.S.	Elevation (ft)	Comments
1.					10.00	
2.						
3.						
4.						
5.						
6.						
7.						
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