

Landscape & Nursery Career Development Event Problem Solving Event # 4 Surveying Instrument

You have been asked to demonstrate your abilities to use a survey instrument. An area has been set out to represent the front stoop and 3 other points in the landscape. Demonstrate how to handle and set up the equipment. Next record the benchmark elevation and the other three elevations. You will then need to calculate the amount of cut or fill needed between the benchmark and a point specified.

Study reference: Instrument, Grading and Drainage in the Landscape Training Manual for Installation Technicians (Chapter 3)

Procedure and Worksheet

1. Set up tripod at the locations specified by the judge.
2. Identify the instrument being used and explain the difference between a builder's level, laser and transit to the judge.
3. Properly remove the instrument that you have selected from the case, place on the tripod and level the instrument.
4. One member of the team should hold the rod at the various locations while the other team member runs the instrument and records the readings.
5. Take and record the following readings:
Point A (benchmark) _____
Point B _____
Point C _____
Point D _____
6. Calculate the elevation difference between point A & B _____
7. Calculate the elevation difference between point A & C _____.
8. Calculate the elevation difference between point A & D _____.
9. Calculate the elevation difference between point B & C _____.
10. Calculate the percent slope between point A & D _____.
11. How much fill or cut would be needed between point A and Point D to create a 4% slope?

12. Explain what the marks on the grade stake provided by the judge mean
13. Identify and explain the difference between the architects' story pole and the engineers' story pole.
14. Properly tear down and store the equipment used for the exercise.

Eye safety note: If using a laser level, do not direct beam at other people, and if using a laser transit, set up so light does not transmit into a person's eyes.