



# Land Surveyor Training

Prepared By Landon Blake  
Problem Set 105

## **Question #1**

In a differential level run, the first foresight is most like taken on:

- a) The starting benchmark.
- b) A turn point.
- c) A grade break.
- d) The toe of slope.

## **Question #2**

A closed differential level run has the following rod readings. (The rod is marked in decimal feet.):

<u>Foresights</u>	<u>Backsights</u>
2.56	3.25
8.21	8.08
4.58	3.94

What is the adjustment for the loop misclosure that should be applied per turn in the level run?:

- a) 0.08 Feet
- b) 0.04 Feet
- c) 0.03 Feet
- d) 0.01 Feet

## **Question #3**

Check all of the following random error sources in a differential leveling survey:

- Errors in leveling of the instrument.
- Errors in positioning of the instrument over the control point.
- Errors from a slightly out-of-plumb level rod.
- Small errors in the horizontal circle readings.
- Mis-reads of the backsight rod by 1 whole foot.
- A consistent 2 degree tilts in the level plane of the instrument.



## **Question #4**

A field crew has used the wrong starting benchmark elevation for a differential level loop. What problem is this most likely to cause on a construction site?:

- a) Building foundation forms that are set to low.
- b) Building grid lines that are shifted 2 feet horizontally.
- c) The misalignment of water mains.
- d) Ripples in the surface of a concrete slab.

## **Question #5**

An instrument operator has incorrectly read the rod for an intermediate foresight during a differential leveling run. This mistake will show in:

- a) The level run closure.
- b) The network adjustment report.
- c) The horizontal angle closure.
- d) It won't likely be detected.

## **Question #6**

In a differential leveling loop the backsight reading for the first set-up is 4.26 feet. The foresight reading for the first set-up is 3.96 feet. The height-of-instrument for the first set-up is 5.25. Which of the following statements is true?:

- a) The instrument is lower than the backsight point.
- b) The instrument is lower than the foresight point.
- c) The backsight point is lower than the foresight point.
- d) The backsight point is higher than the foresight point.

## **Question #7**

In CAD, a group of drawing elements that can be updated from outside the current drawing is most likely to be which of the following?:

- a) Block
- b) Group
- c) Component
- d) External Reference



## **Question #8**

In CAD, the linetype scale for an exhibit will most likely be set in:

- a) The layer manager.
- b) The external reference manager.
- c) The layout tab.
- d) The block editor.

## **Question #9**

In CAD, check the drawing entity properties most likely to be controlled by a layer:

- Linetype
- Elevation
- Width
- Color
- Display Order
- Horizontal Location

## **Question #10**

In CAD, a named view would most frequently be used to do which of the following?:

- a) Zoom to a preset drawing scale and pan to a preset location in the drawing.
- b) Thaw all frozen layers.
- c) Activate and show a predetermined layout tab.
- d) Zoom extents and set the layer state for plotting.

## **Question #11**

In CAD, a line entity may have which of the following:

- Width
- Color
- 3 or More Nodes
- Linetype
- Direction
- End Points At Different Elevations



## **Question #12**

In CAD, the symbol for a benchmark would most likely be organized as a:

- a) Block
- b) Group
- c) Component
- d) External Reference

## **Question #13**

A differential level loop would most commonly be performed as part of which of the following surveys:

- A field survey for rough grade construction layout.
- A field survey for primary control for a small urban construction project.
- A field survey for primary control on a large geodetic survey spanning several counties.
- A field survey for a FEMA elevation certificate.
- A field survey for an urban boundary resolution.
- A field survey for a rural boundary resolution.

## **Question #14**

A RINEX file would mostly likely be created after a survey using a:

- a) Differential level.
- b) Digital level.
- c) Robotic total station.
- d) Static GPS receiver.

## **Question #15**

A minimally constrained least squares adjustment **must** be performed for which type of survey:

- a) A boundary survey.
- b) A topographic survey.
- c) A FEMA elevation certificate.
- d) An ALTA/NSPS land title survey.



## **Question #16**

Photos of an existing building would most likely be taken during what type of field surveys?:

- A field survey for topographic mapping of an urban site.
- A field survey for a FEMA elevation certificate.
- A field survey for a boundary resolution of a rural parcel.
- A field survey for a geodetic control survey spanning several counties.
- A field survey for rough grade construction layout.
- A field survey for underground utility mapping.

## **Question #17**

What type of survey would most likely require review of a GLO township plat?:

- a) A rural boundary survey.
- b) A topographic survey of an urban site.
- c) A geodetic control survey.
- d) A FEMA elevation certificate.

## **Question #18**

California state plane coordinates (northing and easting) would mostly likely be used on what type of survey?

- a) A rural boundary survey.
- b) A topographic survey of an urban site.
- c) A geodetic control survey.
- d) A FEMA elevation certificate.

## **Question #19**

The distances of surface utility features from a parcel boundary would mostly likely be dimensioned on which of the following types of surveys?:

- a) An ALTA/NSPS land title survey.
- b) A FEMA elevation certificate.
- c) A topographic survey.
- d) A survey to map underground utilities.



## **Question #20**

Manhole measure downs (or dips) would most likely be performed on what type of surveys?:

- A topographic survey for a rural site.
- A boundary survey for an urban site.
- A topographic survey for an urban site.
- A survey to resolve highway right-of-way boundaries.
- A survey for a FEMA elevation certificate.
- A survey for underground utility mapping.

## **Question #21**

A bearing of North 80-20-10 West would have what azimuth?

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## **Question #22**

A rectangular land parcel has the following coordinates:

<u>Northing</u>	<u>Easting</u>
500.00	500.00
500.00	750.00
300.00	500.00
300.00	750.00

What is the area of the parcel rounded to the nearest square foot?:

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## **Question #23**

Two property corners have the following coordinates:

<u>Northing</u>	<u>Easting</u>
1,500.00	500.00
2,200.00	500.00

What is the bearing and distance between the two property corners?:

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## **Question #24**

The elevation at the top of a slope is 2,336.25 feet. The slope is 3 to 1 and runs for 206 feet. What is the elevation of the toe of the slope?:

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## **Question #25**

The following backsight and foresight horizontal circle readings were taken from the same total station set-up:

<u>Backsight</u>	<u>Foresight</u>
000-00-00	276-10-20
000-00-05	276-10-22
359-59-50	276-10-08
359-59-55	276-10-15

What is the average horizontal angle measured by the total station?

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