

# CVG 2171 – Surveying and Measurements

## Assignment # 2 – Leveling

Due Date: February 2, 2018 @ the beginning of the tutorial session

Name: \_\_\_\_\_

Student No.: \_\_\_\_\_

**Notes:**

\*\*Make sure to read each question carefully and show all intermediate steps.

**Problem 1**

On a large lake without waves, how far from shore is a sailboat when the top of its 30-ft mast disappears from the view of a person lying at the water's edge?

**Problem 2**

Similar to Problem 1, except for a 5-m mast and a person whose eye height is 1.5 m above the water's edge.

**Problem 3**

Prepare a set of level notes for the data listed. Perform a check and adjust the misclosure. Elevation of BM7 is 2,303.45 ft. If the total loop length is 2,400 ft., what order of leveling is represented? Assume all readings are in feet.

Point	+ S (BS)	- S (FS)
BM7	5.68	
TP1	9.42	7.58
TP2	9.26	5.81
BM8	6.45	4.59
TP3	9.59	8.50
BM7		13.95

#### **Problem 4**

A differential leveling circuit began on BM Hydrant (elevation 6,012.03 ft.) and closed on BM Rock (elevation 6,022.90 ft.). The plus and minus sight distances were kept approximately equal. Readings (in feet) given in the order taken are 1.85 (+ S) on BM Hydrant, 3.56 (- S) and 8.80 (+ S) on TP1, 5.63 (- S) and 9.78 (+ S) on BM1, 6.88 (- S) and 5.54 (+ S) on BM2, 3.11 (- S) and 6.98 (+ S) on TP2, and 3.00 (- S) on BM Rock. Prepare, check, and adjust the notes.

#### **Problem 5**

Reciprocal leveling gives the following readings in meters from a setup near *A*: on *A*, 1.365; on *B*, 4.928, 4.924, and 4.926. At the setup near *B*: on *B*, 4.251; on *A*, 0.687, 0.688, and 0.689. The elevation of *A* is 564.872 m. Determine the elevation of *B*.