

ASSIGNMENT # 1

- Figure (1) shows the plan of a site that is 30 m × 40 m overall, with a grid laid out at 10 m on center. The elevation (in meters) of the existing grade is shown at each intersection point on this grid. Calculate the volume of cut and the volume of fill in cubic meters if it is required to:
 - Level this site to a new grade of 1.5 m over the entire area.
 - If the excavated soil is to be used for filling up to the new grade, what is surplus/deficit in soil?

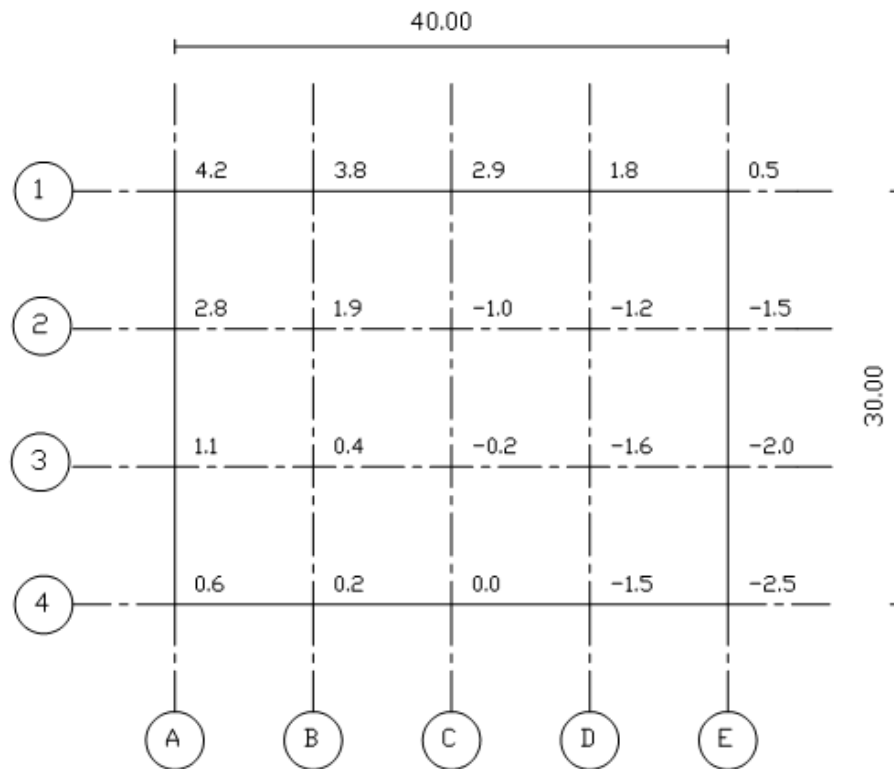
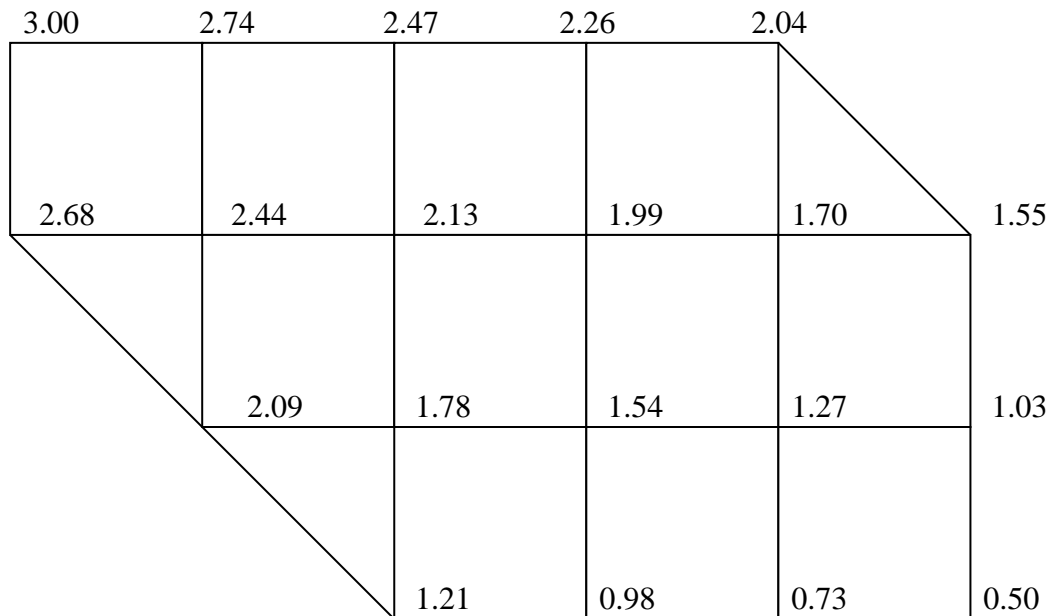
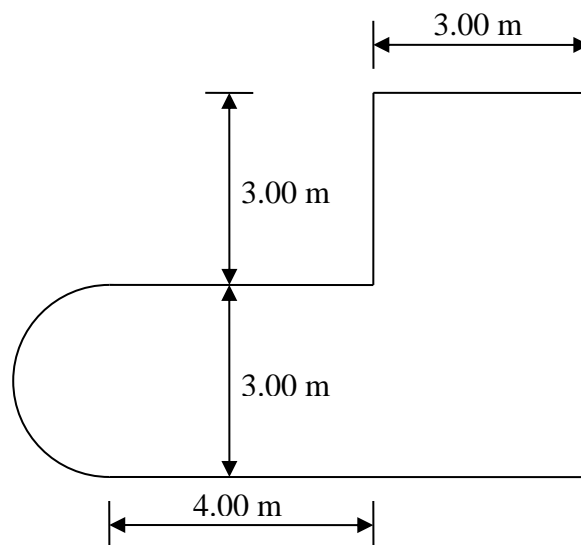


Figure (1)

- Find the amount of excavation needed if the entire area under the building the outline of which is shown below is to be excavated to a level of -1.00 m. The building is divided into 10 m x 10 m squares.



3. Calculate the amount of excavation for the swimming pool shown below if the depth of the excavation was 2.50 m and the excavation is going to be conducted using a slope of 1:1.



4. Find the amount excavation needed for a pipe line trench; given that the slope of the pipe line is 1:50, the width of the trench is 60 cm and the depth of the trench at the start is 1.00 m, the length of the pipe line is 100 m. land levels were measured each 10 m and were found to be as follows; 9.50, 10.00, 9.60, 8.90, 8.65, 8.76, 8.57, 8.84, 9.03, 9.22, 9.12.