Assignment (8)

1. Define the satellite station problem and how can it serve the survey work?
2. S is a satellite station 5.8 m apart from a main station P South from S. Q is another main station at 3086.40 m from P and the measured direction SQ is 296° 06' 11". Determine the direction PQ.
3. An occupied station E 34.6 m from an inaccessible point B north of E. A, C are on the east from EB and the distances AB, BC are 16.246 km and 19.321 km respectively. If the angles AEC and BEA are 69° 14' 27", 76° 23' 06" respectively. Calculate the angle ABC.
4. The directions observed from a satellite station S, 70 m from a triangulation station *C*, to the triangulation station *A*, *B*, and *C* are 0°00′00″, 71°32′54″ and 301°16′15″, respectively. The lengths of *AB*, and *AC* are 16.5 km and 25.0 km, respectively. Deduce the angle *ACB.*
5. In a triangulation survey, the station C could not be occupied in a triangle ABC, and a satellite station S was established north of C. The angles as given in Table were measured at S using a theodolite.

Pointing on	Horizontal circle reading
A	14°43′27″
B	74°30′35″
C	227°18′12″

   Approximate lengths of AC and BC were found by estimation as 17495 m and 13672 m, respectively, and the angle ACB was deduced to be 59°44′53″. Calculate the distance of S from C.
6. S is a satellite station to a triangulation station A at 12 m from A. From S the following bearings were observed:

   A = 0°00′00″, B = 143°36′20″, C = 238°24′48″ and D = 307°18′54″

   The lengths of lines AB, AC, and AD were measured and found to be 3190.32 m, 4085.15, and 3108.60 m, respectively. Determine the directions of B, C, and D from A.