

Practice exercise for the computation of the line leveling.

Field book with the measurements:

Point ID	Distance	Backsight	Foresight	Rise/Fall	Elevation [m]
1002		0974			102.478
IM1	51	1224	0969		
IM2	48	0961	1223		
IM3	35	1469	1189		
IM4	51	1187	1723		
35	35	1339	1778		
IM5	59	1172	1020		
IM6	64	1058	0966		
IM7	56	1517	0945		
IM8	32	0925	1012		
IM9	48	1607	1378		
5040	31		1137		102.587
5040		1122			102.587
IM10	37	2072	1591		
IM11	38	0743	1621		
IM12	22	1632	1248		
IM13	50	0823	1746		
IM14	55	1168	1031		
35	60	2315	1485		
IM15	42	1313	1725		
IM16	52	1646	1057		
IM17	37	1595	1420		
IM18	53	1015	1599		
1002	59		1018		102.478

Completed field book:

Point ID	Distance	Backsight	Foresight	Rise/Fall	Elevation [m]
1002		0974			102.478
IM1	51	1224	0969	0005	
IM2	48	0961	1223	0001	
IM3	35	1469	1189	-0228	
IM4	51	1187	1723	-0254	
35	35	1339	1778	-0591	
IM5	59	1172	1020	0319	
IM6	64	1058	0966	0206	
IM7	56	1517	0945	0113	
IM8	32	0925	1012	0505	
IM9	48	1607	1378	-0453	
5040	31		1137	0470	102.587
Σ	510			0093	0109
5040		1122			102.587
IM10	37	2072	1591	-0469	
IM11	38	0743	1621	0451	
IM12	22	1632	1248	-0505	
IM13	50	0823	1746	-0114	
IM14	55	1168	1031	-0208	
35	60	2315	1485	-0317	
IM15	42	1313	1725	0590	
IM16	52	1646	1057	0256	
IM17	37	1595	1420	0226	
IM18	53	1015	1599	-0004	
1002	59		1018	-0003	102.478
Σ	505			-0097	-0109

Computation of the elevation of the unknown point:

Point ID	Distance	Forward	Backward	Average	Correction	Corrected elevation difference	Elevation [m]
1002							102.478
	220	-1067	1065	-1066	0006	-1060	
35							<i>101.418</i>
	290	1160	-1162	1161	0008	1169	
5040							102.587
Σ	510			0095	0014		