

# Engineering Surveying

## 3<sup>rd</sup> Stage

### leveling using staintia method

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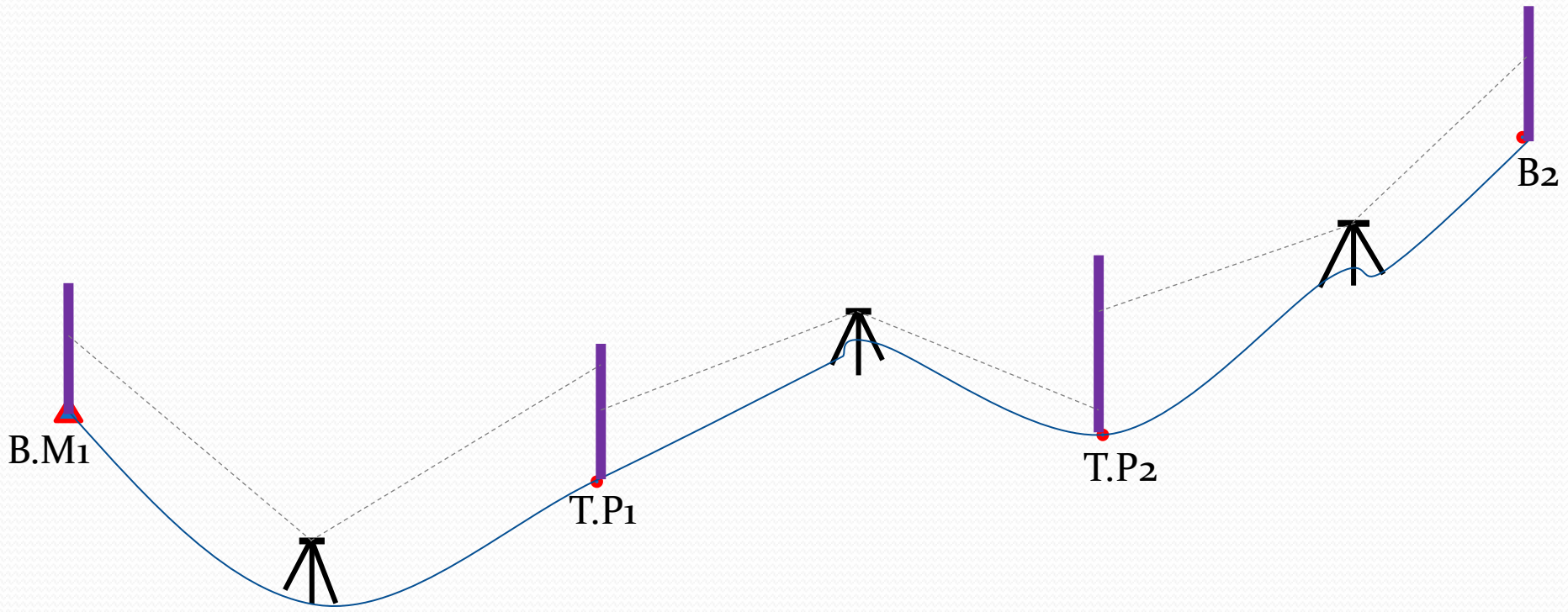


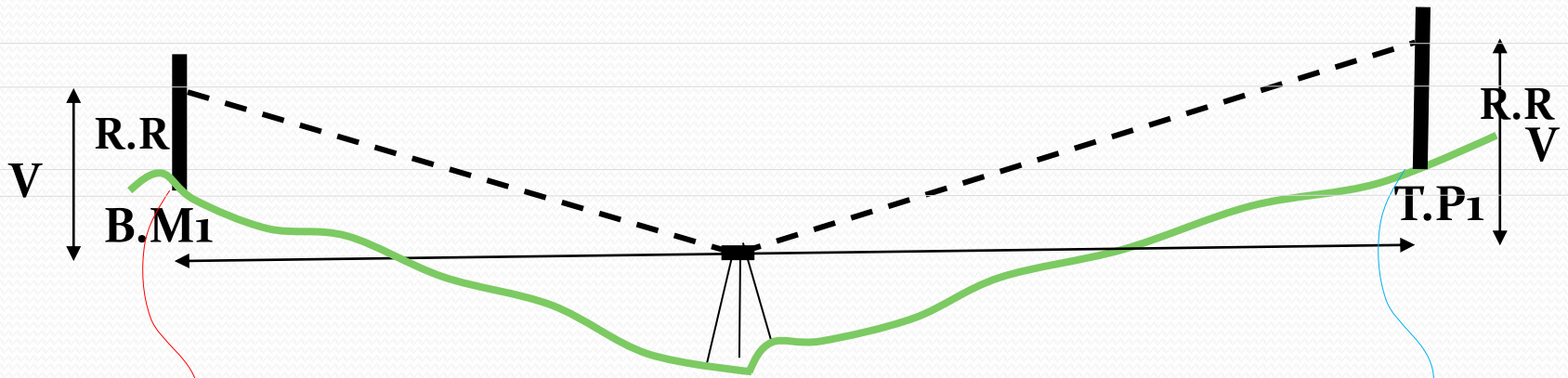
# Lecture NO.5

# EX.

- In leveling procedure by stadia method the following information recording in table below compute (B2) elevation if you know the elevation of B.M<sub>1</sub> =(72.70)m.

Station	Back Sight			Fore Sight		
	S	R.R	V.A	S	R.R	V.A
B.M <sub>1</sub>	2.24	2.12	+3 <sup>0</sup> 15'			
T.p <sub>1</sub>	1.56	1.78	-4 <sup>0</sup> 36'	1.64	2.82	+4 <sup>0</sup> 06'
T.p <sub>2</sub>	1.24	2.62	-2 <sup>0</sup> 24'	1.10	1.55	-6 <sup>0</sup> 12'
B <sub>2</sub>				1.90	1.95	+3 <sup>0</sup> 42'





$$\text{Elev. (T.P1)} = \text{Elev. (B.M1)} + \text{R.R(B.M1)} - V(\text{B.M1}) + V(\text{T.P1}) - \text{R.R (T.P1)}$$

# Solution

- $B.S = R.R - V$
- $F.S = V - R.R$
- ملاحظة مهمة جداً عند تطبيق القانون تحمل ( $V$ ) الإشارة الجبرية ( $+$  او  $-$ ) حسب الزاوية الراسية اذا ارتفاع ( $+V$ ) او انخفاض ( $-V$ ).

$$V = 1/2 * K * S * \sin 2 \alpha$$

# Solution

Station	R.R(B.S)	v.(B.S)	R.R(F.S)	v.(F.S)	(B.S)	(F.S)	Δ Elev.	Elev.(m.)
B.M1	2.12	+12.68			-10.56			72.70
T.p1	1.78	-12.47	2.82	+11.70	+14.25	+8.88	-1.68	71.02
T.p2	2.62	-5.19	1.55	-11.81	+7.81	-13.36	0.89	71.91
B2			1.95	+12.24		+10.29	18.10	90.01
Σ					11.50	5.81	17.31	

For check

$$\sum(B.S) + \sum(F.S) = \sum(\Delta \text{ Elev.}) = \text{Last Elevation} - \text{First Elevation}$$

$$(11.50 + 5.81) = (17.31) = (90.01 - 72.70)$$

$$17.31 = 17.31 = 17.31$$