

Compass

①

The compass measured the bearing of the open & closed traverse but the local attraction which caused by electric cables and iron led to error in measurement.

Method of elimination of local attraction can be illustrated in some examples below

example ①

line	F.B	B.B	Correction		Correct direction	
			F.B	B.B	F.B	B.B
AB	39°	215°	-4	0	35°	215°
→ BC	94°	274°	0	0	94°	274°
CD	58°	239°	0	-1	58°	238°
DE	18°	195°	-1	+2	17°	197°

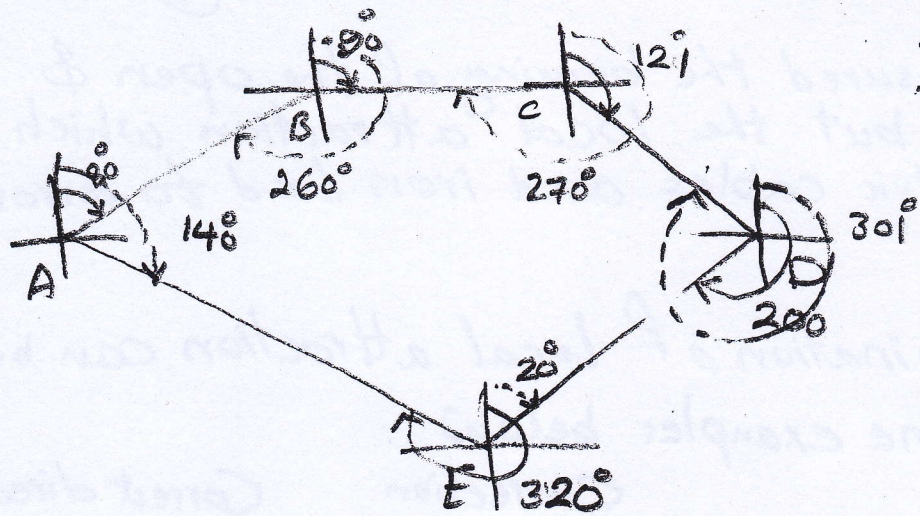
example ②

(Polygon)

In running a closed traverse ABCDE, the following bearings were observed with a compass where local attraction was suspected. Find the correct fore and back bearings and also find out the included angles.

point	A	B	C	D	E	Correction		Correct dir.	Included angle
	F.B	B.B	F.B	B.B	F.B	B.B			
	80°	90°	120°	200°	318°				
	B.B	140°	260°	269°	301°	18°			
side	F.B.	B.B.	Correction		Correct dir.		Included angle		
			F.B.	B.B.	F.B.	B.B.			
→ AB	80°	260°	0*	0	80°	260°	60°		
BC	90°	269°	0	+1	90°	270°	170°		
CD	120°	301°	+1	0	121°	301°	149°		
DE	200°	18°	0	+2	200°	20°	101°		
EA	318°	140°	+2	0*	320°	140°	60°		

(2)



\longrightarrow F.B } the correct direction.
 \dashrightarrow B.B }

$\Delta A = 140^\circ - 80^\circ = 60^\circ$
 $\Delta B = 260^\circ - 90^\circ = 170^\circ$
 $\Delta C = 270^\circ - 121^\circ = 149^\circ$
 $\Delta D = 301^\circ - 200^\circ = 101^\circ$
 $\Delta E = (360^\circ - 320^\circ) + 20^\circ = 60^\circ$

For check
 $(n-2) \times 180 = \text{Sum of interior angles}$
 $(5-2) \times 180 = (60^\circ + 170^\circ + 149^\circ + 101^\circ + 60^\circ)$
 $540^\circ = 540^\circ \dots \text{o.k.}$

notes ① In example ② must be the error in station A is equal for side AB and EA because closed traverse.

② In some questions the direction in bearing when correction of local attraction must be converted to azimuth in the beginning and complete the solution.



PA

H.W/ For bearing and back bearing for open traverse are shown in table below. Determine the correct directions

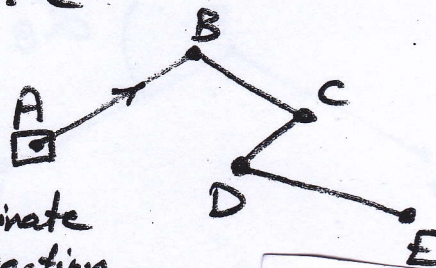
	F.B	B.B
PQ	69°	249°
QR	82°	260°
RS	75°	258° 30'
ST	172° 30'	354°
TU	133° 30'	311°
UV	354° 30'	172°

Traverse *is the angle between*

A traverse is a series of connected line whose lengths and directions are measured in field. kinds of traverse

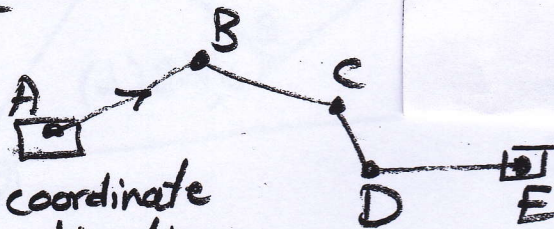
1) Open traverse

⊄ known coordinate
⊄ known direction



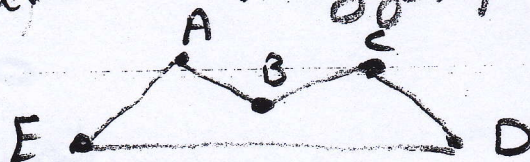
2) Closed traverse

⊄ known coordinate
= direction



⊄ known coordinate
⊄ known direction

OR) Ring traverse (Polygon)



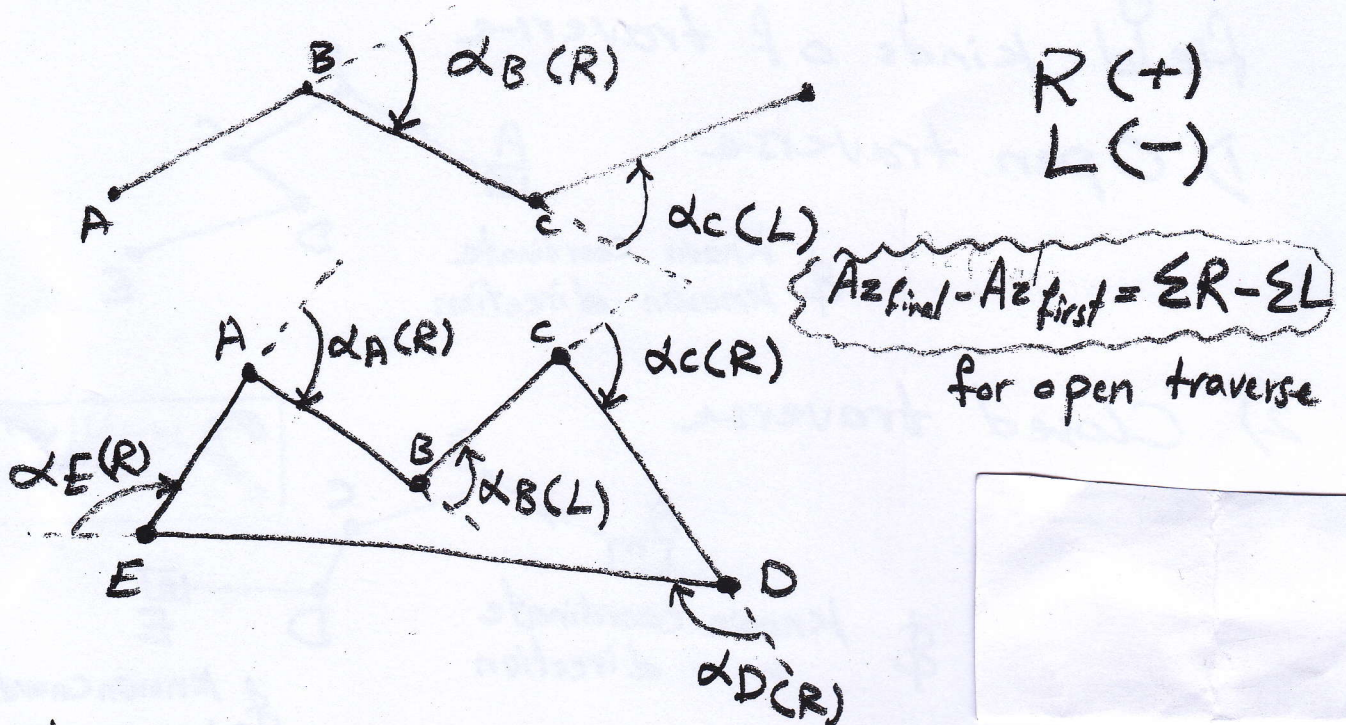
Polygon

For measuring the angles of traverse there is ⁽⁴⁾ two ways:

1. Deflection angle: is the angle between the extension side and the next side. The value of deflection angle may be varied from 0° to 180°

The designation of deflection angle

if the deflection angle measured with clockwise it is right (R), whereas the deflection angle measured with an anticlockwise it is left (L)



$$\alpha_A - \alpha_B + \alpha_C + \alpha_D + \alpha_E = \underline{\underline{360^\circ}}$$

only for closed traverse (type Ring traverse)