

## LECTURE 20

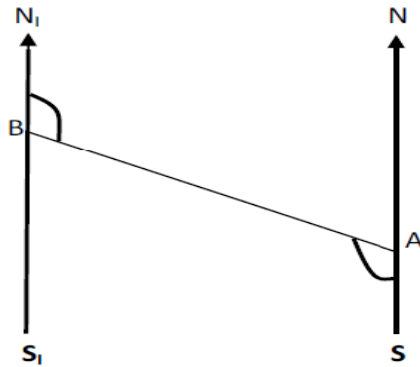
### Back and Fore bearing:

#### Introduction:

In this section, we will examine the back and fore bearing; and the steps to be taken when traversing with compass survey.

Back and fore bearing

Fore bearing is the compass bearing of a place taken from a station to the other in the direction that the survey is being carried out. The back bearing in the other hand is the bearing in the opposite direction i.e. the bearing taken backwards from the next station to its preceding station that the fore bearing was taken. The difference between BB and FB is always  $180^\circ$ .



Back and fore bearing

If B is sighted from an observer at A, and the NS and  $N_1S_1$  are the magnetic NS lines, then Forward bearing (FB) =  $\angle N A S + \angle S A B$

Back bearing BA =  $\angle N_1 B A$

$\therefore$  Back Bearing BA = Forward Bearing AB -  $180^\circ$

If the observer relocates to B and observes B, then forward bearing (FB) BA =  $\angle N_1 B A$  and back bearing (AB) =  $\angle N A S + \angle S A B$ . Hence, we can conclude that Forward Bearing =  $\angle N_1 B A + 180^\circ$ . As a general rule, if the Fore Bearing is less than  $180^\circ$ , add  $180^\circ$  to get the Back Bearing, and if the Fore Bearing is greater than  $180^\circ$ , then subtract  $180^\circ$  to get the Back Bearing.