

## Applications of Trigonometry: Navigation

**Bearing** is a number that represents the direction of travel.

Bearings can be expressed as:

- a single angle such as  $211^\circ$   
(this is measured clockwise from the north)
- a combination of a compass direction and an angle such as  $N 14^\circ W$   
(this is measured from the N/S axis, in the E/W direction)

Notes

## Finding Distance based on Bearings

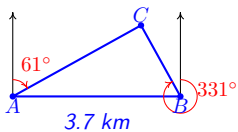
### Example

Radar stations A and B are 3.7 km apart, and B lies due east of A.

Station A detects a plane at point C, at a bearing of  $61^\circ$ .

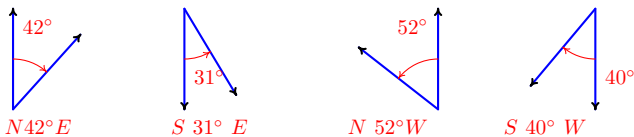
Station B simultaneously detects the same plane at the same point C at a bearing of  $331^\circ$ .

### Solution



Notes

## Example Bearings



Notes

## Distances and Bearing

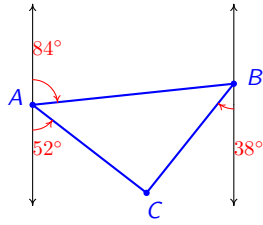
Consider three points A, B, and C, which are situated so that the bearings are as follows:

- A to C is  $S 52^\circ E$
- A to B is  $N 84^\circ E$
- B to C is  $S 38^\circ W$

A plane flying from A to B covers the distance in 2.4 hours, at 250 mph.

Find the distance from A to C.

**Solution**



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