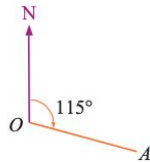


WALT about compass bearings

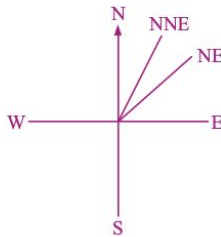
Success Criteria I know the directions and understand that the full rotation is 360°

Plotting a course for a ship or an aircraft requires accurate directions. These directions are usually given in the form of bearings. The agreed convention is that the direction of travel is measured by a clockwise rotation from the true north direction. The bearing of A from O is the measure of the angle between the line OA and the line through O in the true north direction. The angles are always written using three digits.

This angle is the bearing of A from O . It is written as 115°T .

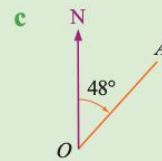
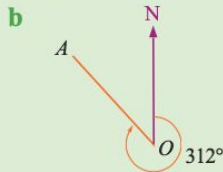


Bearings are sometimes given using the compass rose. In this case the bearings are given with respect to north, south, east and west. For example, NNE is shown.



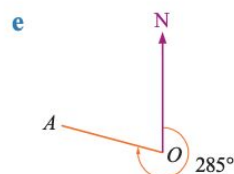
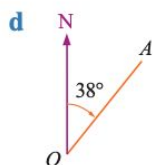
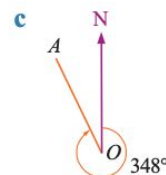
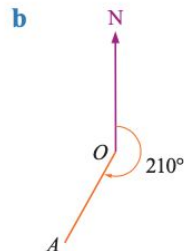
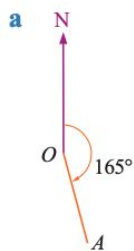
EXAMPLE 1

Write the bearing of A from O as shown in each diagram.



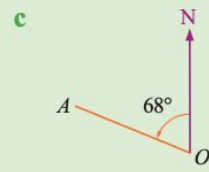
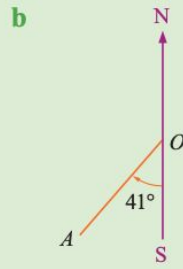
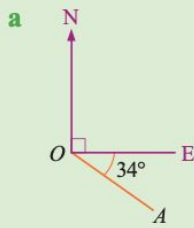
| | Solve | Think | Apply |
|----------|--------------------------------------|-------------------------|---|
| a | The bearing is 152°T . | Clockwise 152° . | There must be three digits in the bearing. The bearing is the clockwise turning from north. |
| b | The bearing is 312°T . | Clockwise 312° . | |
| c | The bearing is 048°T . | Clockwise 048° . | |

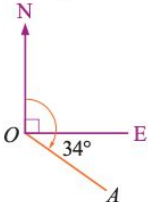
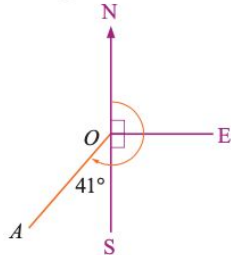
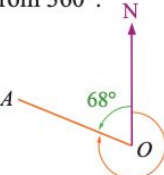
1 Write the bearings of A from O for each of the following.



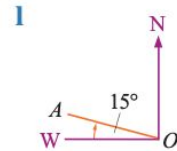
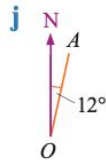
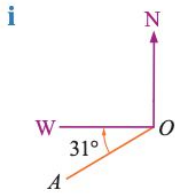
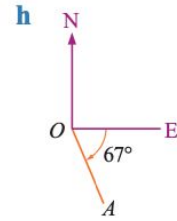
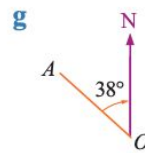
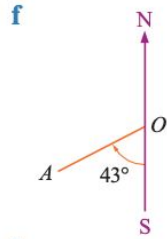
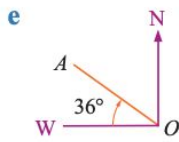
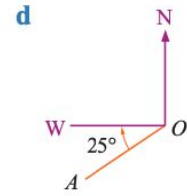
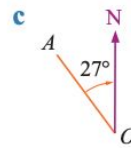
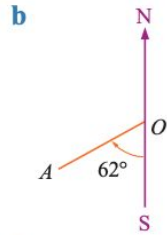
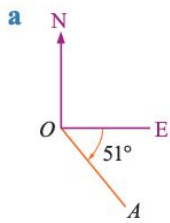
EXAMPLE 2

Write the bearing of A from O .



| | Solve | Think | Apply |
|----------|---|--|--|
| a | Bearing is $90^\circ + 34^\circ = 124^\circ\text{T}$. | The angle NOE is 90° .  | The angle from north in a clockwise direction must be found for the bearing. Add or subtract as required. Bearings will never be greater than 360° . |
| b | Bearing is $180^\circ + 41^\circ = 221^\circ\text{T}$. | The angle NOS is 180° .  | |
| c | The bearing is $360^\circ - 68^\circ = 292^\circ\text{T}$. | 68° is anticlockwise, so subtract from 360° .  | |

2 Write the bearing of A from O shown below.



EXAMPLE 3

Draw a diagram to represent the position of A from O for each of the following compass bearings.

a 110°T

b 048°T

c 328°T

| | Solve | Think | Apply |
|----------|-------|-----------------------------------|--|
| a | | Clockwise 110° from north. | Always turn in a clockwise direction from north. |
| b | | Clockwise 48° from north. | |
| c | | Clockwise 328° from north. | |

3 Draw a diagram to represent the position of A from O for each of these compass bearings.

a 128°T

b 022°T

c 312°T

d 231°T

e 005°T

f 285°T

g 185°T

h 300°T

i 073°T

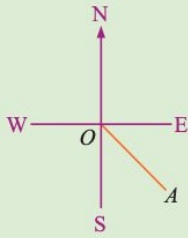
j 355°T

k 133°T

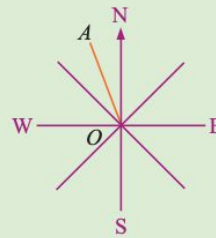
l 099°T

EXAMPLE 4

a



b



- i** Write the compass bearing shown in each diagram.
- ii** Find $\angle NOA$.
- iii** Write as a true bearing.

| | Solve | Think | Apply |
|------------|--|--|---|
| a i | The bearing is SE. | OA is in the middle of south and east. | Each of the main compass points is 90° . The bearing divides the angle into two angles of 45° . |
| ii | $\angle NOA = 90^\circ + 45^\circ = 135^\circ$ | East is 90° from north. | |
| iii | 135°T | The angle from north. | |

| | Solve | Think | Apply |
|------------|---|---|--|
| b i | The bearing is NNW. | AO is between NW and N. | The angle between these dividers is 22.5° . |
| ii | $\angle NOA = 90^\circ + 90^\circ + 90^\circ + 45^\circ + 22.5^\circ = 337.5^\circ$ | A is close to north, so the bearing is close to 360° . | |
| iii | 337.5°T | The angle from north. | |

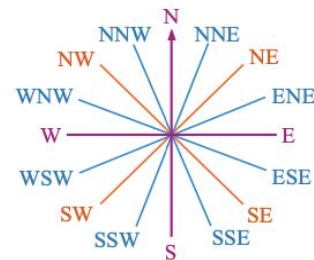
4 Here is a compass rose.

a Find the angle between:

- | | |
|---------------------|---------------------|
| i N and E | ii S and SW |
| iii W and NW | iv E and ESE |
| v SW and WSW | vi W and NNW |

b Write each of these compass bearings as true bearings.

- | | |
|----------------|----------------|
| i NNE | ii ENE |
| iii SE | iv SSE |
| v SSW | vi WSW |
| vii WNW | viii NW |

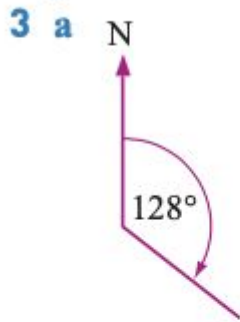


Always put the north or south part of the bearing first. **!**

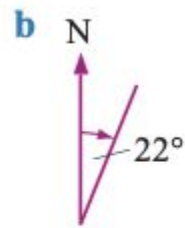
Check your answers

- | | | |
|--------------------------------|------------------------------|------------------------------|
| 1 a 165°T | b 210°T | c 348°T |
| d 038°T | e 285°T | f 008°T |
| 2 a 141°T | b 242°T | c 333°T |
| d 245°T | e 306°T | f 223°T |

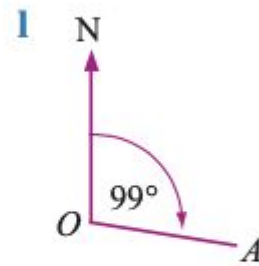
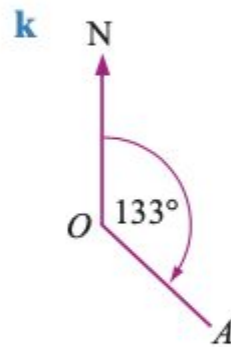
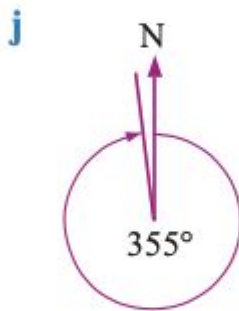
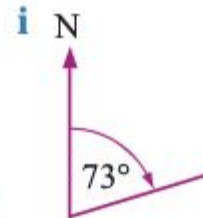
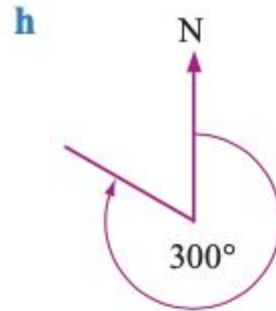
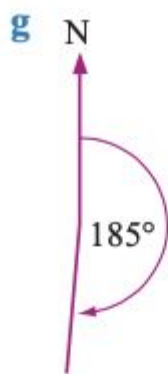
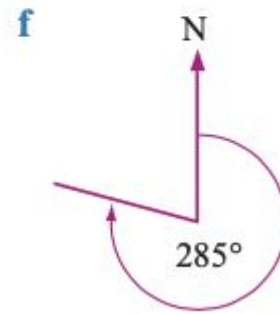
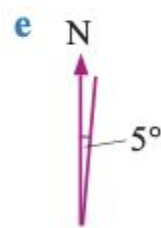
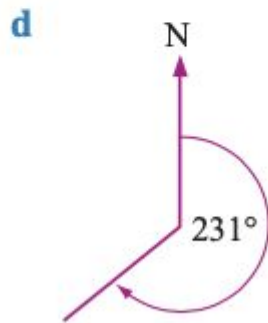
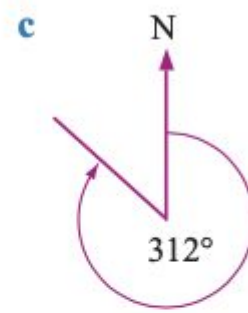
g 322°T
j 012°T



h 157°T
k 201°T



i 239°T
l 285°T



4 a i 90°
iv 22½°

ii 45°
v 22½°

iii 45°
vi 67½°

b i 022.5°T
iv 157.5°T
vii 292.5°T

ii 067.5°T
v 202.5°T
viii 315°T

iii 135°T
vi 247.5°T