

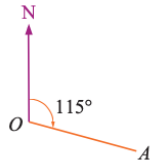
## WALT read compass bearings

Success Criteria I know the directions and understand that the full rotation is  $360^\circ$

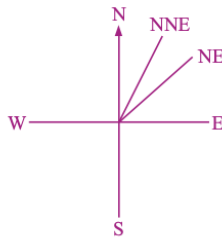
### Video

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  $115^\circ\text{T}$ .



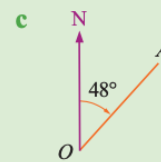
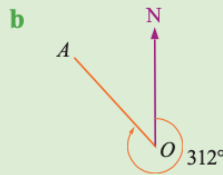
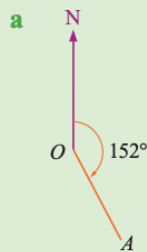
Bearings are sometimes given using the compass rose. In this case the bearings are given with respect to north, south, east and west. For example, NNE is shown.



### Video 2

#### EXAMPLE 1

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

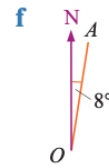
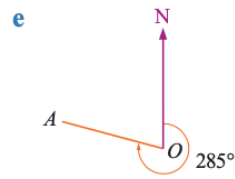
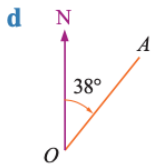
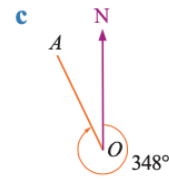
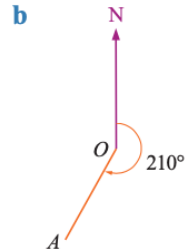
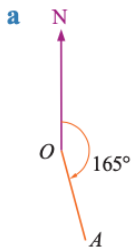


	Solve	Think	Apply
<b>a</b>	The bearing is $152^\circ\text{T}$ .	Clockwise $152^\circ$ .	There must be three digits in the bearing. The bearing is the clockwise turning from north.
<b>b</b>	The bearing is $312^\circ\text{T}$ .	Clockwise $312^\circ$ .	
<b>c</b>	The bearing is $048^\circ\text{T}$ .	Clockwise $048^\circ$ .	

### Video 3

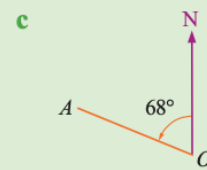
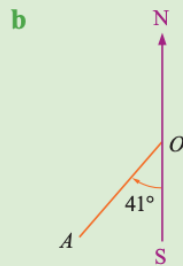
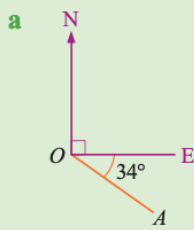
[Video on How to calculate distance using bearings and Trigonometry](#)

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



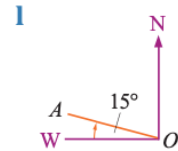
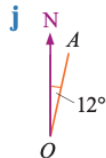
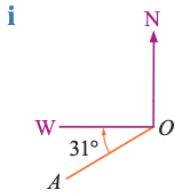
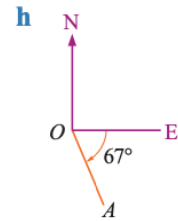
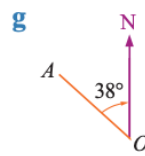
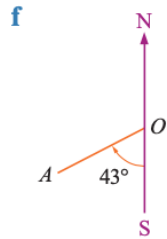
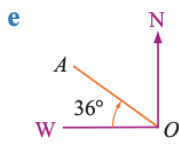
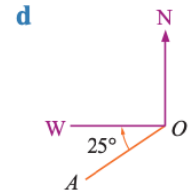
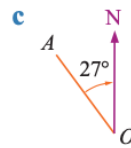
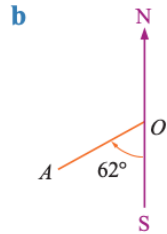
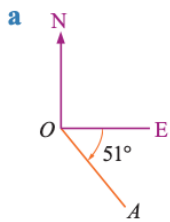
## EXAMPLE 2

Write the bearing of  $A$  from  $O$ .



	Solve	Think	Apply
<b>a</b>	Bearing is $90^\circ + 34^\circ = 124^\circ\text{T}$ .	The angle $NOE$ is $90^\circ$ . 	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 $360^\circ$ .
<b>b</b>	Bearing is $180^\circ + 41^\circ = 221^\circ\text{T}$ .	The angle $NOS$ is $180^\circ$ . 	
<b>c</b>	The bearing is $360^\circ - 68^\circ = 292^\circ\text{T}$ .	$68^\circ$ is anticlockwise, so subtract from $360^\circ$ . 	

**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**  $110^\circ\text{T}$

**b**  $048^\circ\text{T}$

**c**  $328^\circ\text{T}$

	Solve	Think	Apply
<b>a</b>		Clockwise $110^\circ$ from north.	Always turn in a clockwise direction from north.
<b>b</b>		Clockwise $48^\circ$ from north.	
<b>c</b>		Clockwise $328^\circ$ from north.	

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

**a**  $128^\circ\text{T}$

**b**  $022^\circ\text{T}$

**c**  $312^\circ\text{T}$

**d**  $231^\circ\text{T}$

**e**  $005^\circ\text{T}$

**f**  $285^\circ\text{T}$

**g**  $185^\circ\text{T}$

**h**  $300^\circ\text{T}$

**i**  $073^\circ\text{T}$

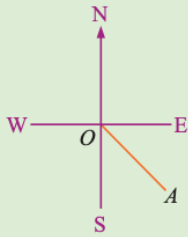
**j**  $355^\circ\text{T}$

**k**  $133^\circ\text{T}$

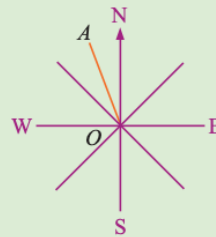
**l**  $099^\circ\text{T}$

## 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
<b>a i</b>	The bearing is SE.	$OA$ is in the middle of south and east.	Each of the main compass points is $90^\circ$ . The bearing divides the angle into two angles of $45^\circ$ .
<b>ii</b>	$\angle NOA = 90^\circ + 45^\circ = 135^\circ$	East is $90^\circ$ from north.	
<b>iii</b>	$135^\circ\text{T}$	The angle from north.	

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

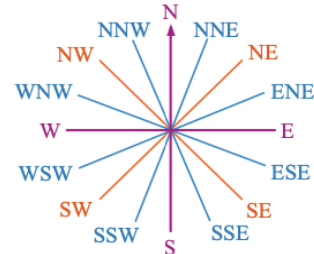
**4** Here is a compass rose.

**a** Find the angle between:

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

**b** Write each of these compass bearings as true bearings.

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

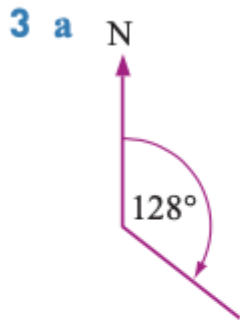


Always put the north or south part of the bearing first. **!**

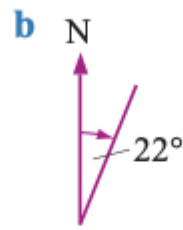
## Check your answers

- |                                |                              |                              |
|--------------------------------|------------------------------|------------------------------|
| <b>1 a</b> $165^\circ\text{T}$ | <b>b</b> $210^\circ\text{T}$ | <b>c</b> $348^\circ\text{T}$ |
| <b>d</b> $038^\circ\text{T}$   | <b>e</b> $285^\circ\text{T}$ | <b>f</b> $008^\circ\text{T}$ |
| <b>2 a</b> $141^\circ\text{T}$ | <b>b</b> $242^\circ\text{T}$ | <b>c</b> $333^\circ\text{T}$ |
| <b>d</b> $245^\circ\text{T}$   | <b>e</b> $306^\circ\text{T}$ | <b>f</b> $223^\circ\text{T}$ |

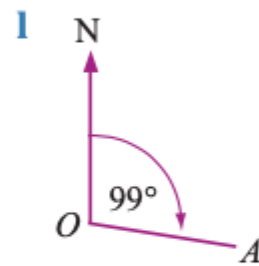
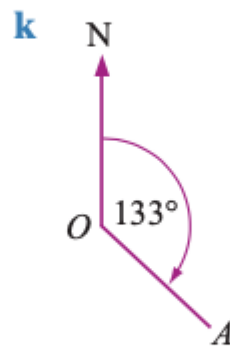
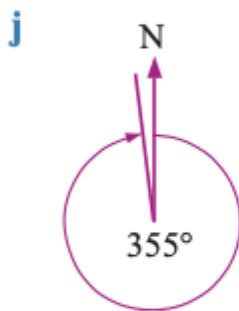
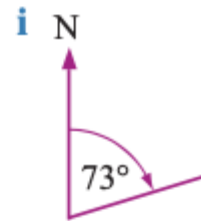
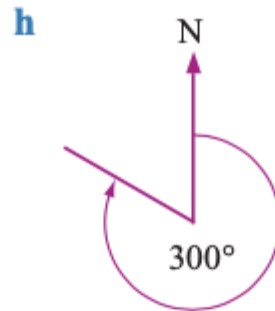
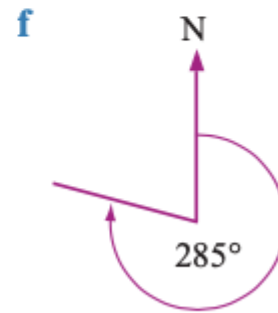
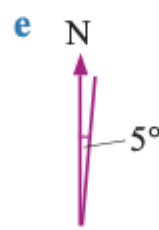
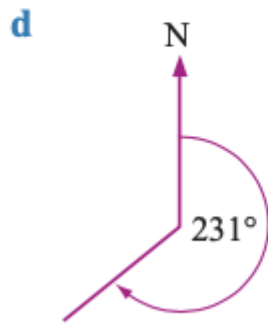
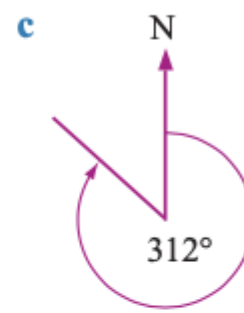
**g** 322°T  
**j** 012°T



**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