

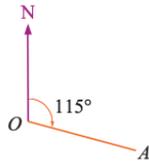
## WALT read compass bearings

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

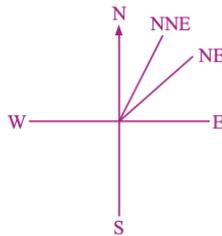
### Video

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



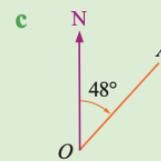
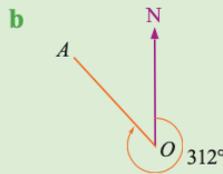
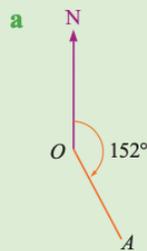
Bearings are sometimes given using the compass rose. In this case the bearings are given with respect to north, south, east and west. For example, NNE is shown.



### Video 2

#### EXAMPLE 1

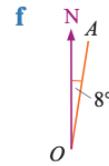
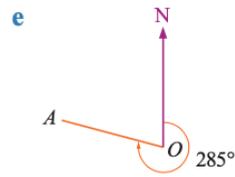
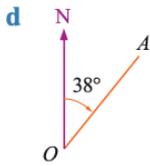
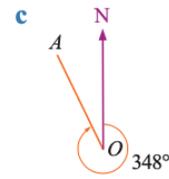
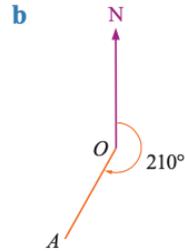
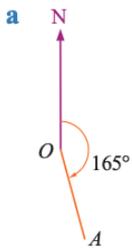
Write the bearing of  $A$  from  $O$  as shown in each diagram.



|          | 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 $048^\circ$ . |   |

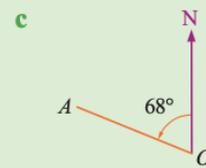
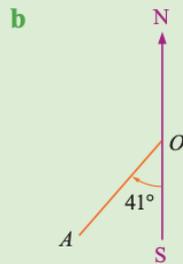
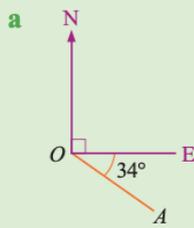
### Video 3

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



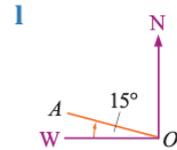
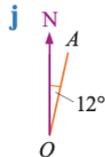
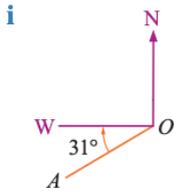
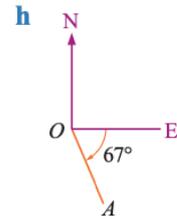
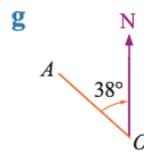
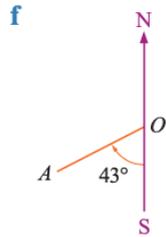
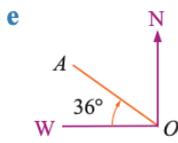
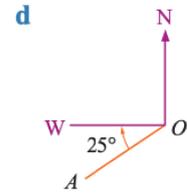
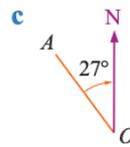
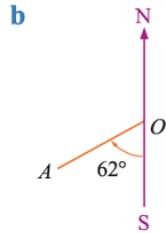
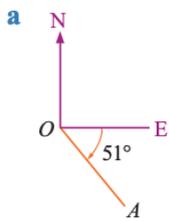
## EXAMPLE 2

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 $90^\circ$ .<br>                             | 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 $180^\circ$ .<br>                            |   |
| <b>c</b> | The bearing is $360^\circ - 68^\circ = 292^\circ\text{T}$ . | $68^\circ$ is anticlockwise, so subtract from $360^\circ$ .<br> |   |

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

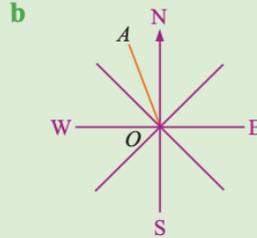
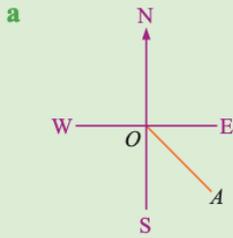
**i**  $073^\circ\text{T}$

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

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

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

## EXAMPLE 4



- 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> | $135^\circ T$                                  | 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> | $337.5^\circ T$   | The angle from north.   |  |

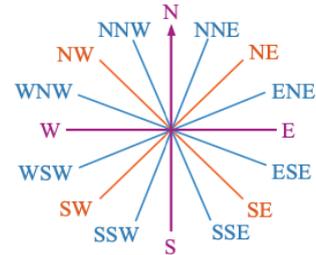
**4** Here is a compass rose.

**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 |

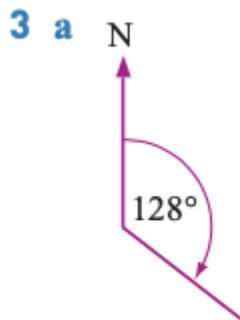


Always put the north or south part of the bearing first. **!** .....

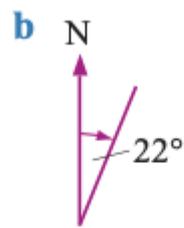
## Check your answers

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

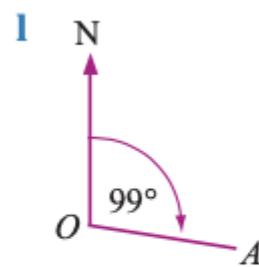
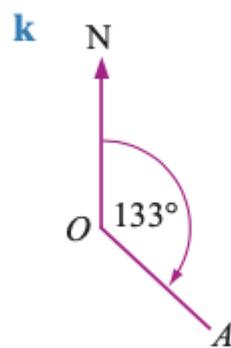
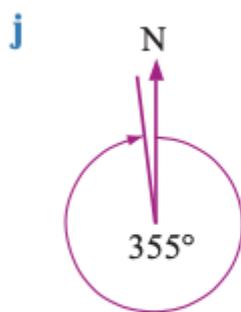
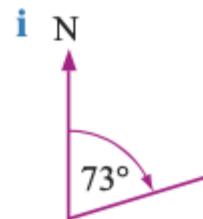
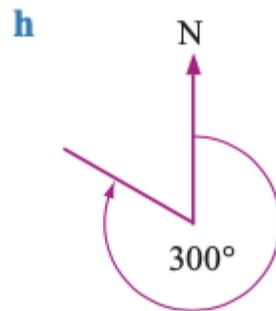
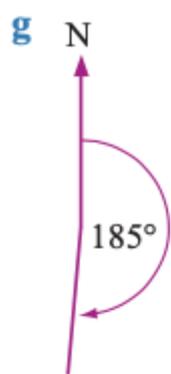
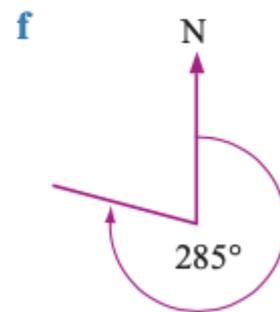
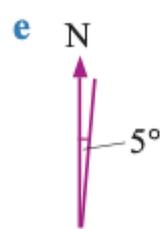
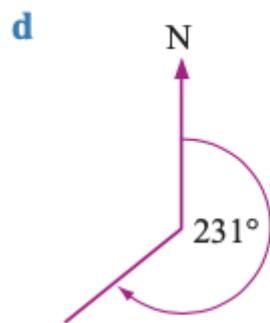
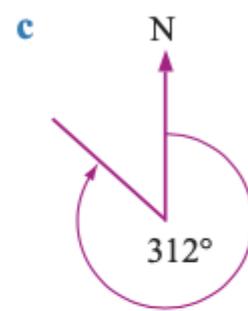
**g** 322°T  
**j** 012°T



**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