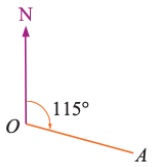
WALT read compass bearings

Success Criteria I know the directions and understand that the full rotation is 360^0

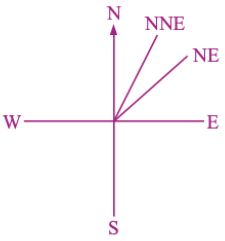
Video

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°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.

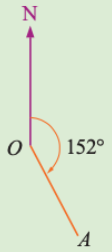


Video 2

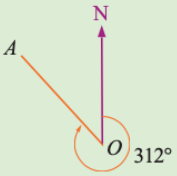
EXAMPLE 1

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

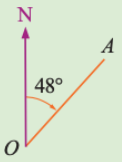
a



b



c



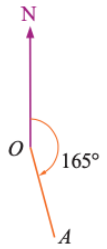
	Solve	Think	Apply
a	The bearing is 152°T.	Clockwise 152°.	There must be three digits in the bearing. The bearing is the clockwise turning from north.
b	The bearing is 312°T.	Clockwise 312°.	
c	The bearing is 048°T.	Clockwise 048°.	

Video 3

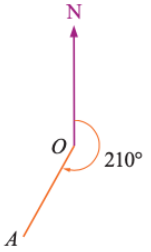
Video on How to calculate distance using bearings and Trigonometry

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

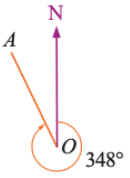
a



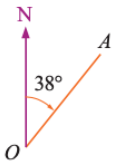
b



c



d



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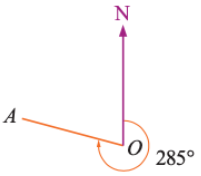
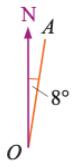


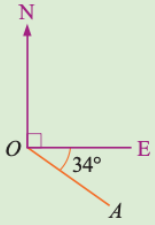
f



EXAMPLE 2

Write the bearing of A from O.

a



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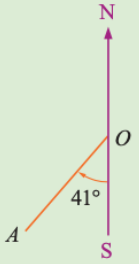
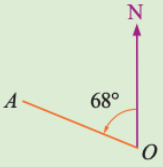
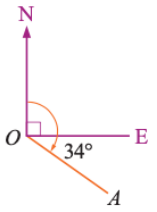
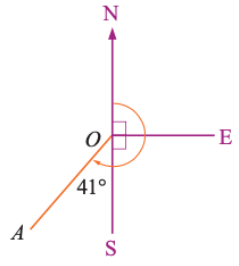
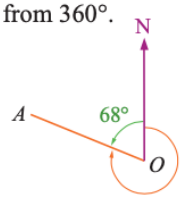


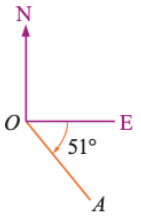
c



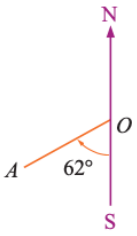
	Solve	Think	Apply
a	Bearing is $90° + 34° = 124°$T.	The angle NOE is 90°. 	The angle from north in a clockwise direction must be found for the bearing. Add or subtract as required. Bearings will never be greater than 360°.
b	Bearing is $180° + 41° = 221°$T.	The angle NOS is 180°. 	
c	The bearing is $360°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

2 Write the bearing of A from O shown below.

a



b



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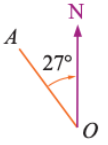
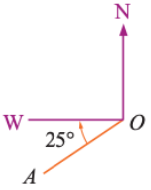


d



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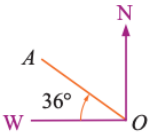

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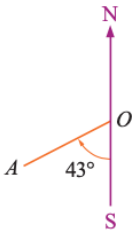
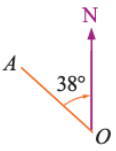


g



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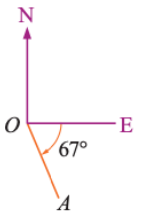
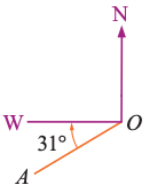


i



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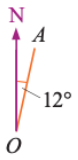

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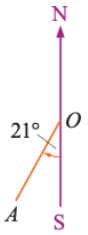

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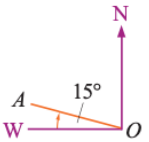
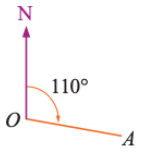
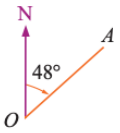
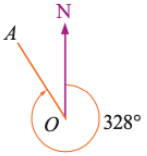


EXAMPLE 3

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

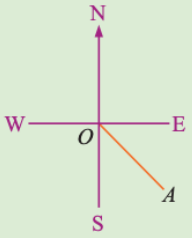
	Solve	Think	Apply
a		Clockwise 110° from north.	Always turn in a clockwise direction from north.
b		Clockwise 48° from north.	
c		Clockwise 328° from north.	

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

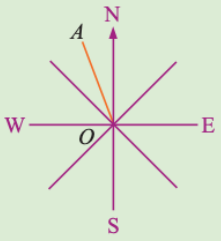
a 128°T **b** 022°T **c** 312°T **d** 231°T
e 005°T **f** 285°T **g** 185°T **h** 300°T
i 073°T **j** 355°T **k** 133°T **l** 099°T

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	$\angle NOA = 90° + 45°$ $= 135°$	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	$\angle NOA = 90° + 90° + 90° + 45° + 22.5°$ $= 337.5°$	A is close to north, so the bearing is close to 360°.	
iii	337.5°T	The angle from north.	

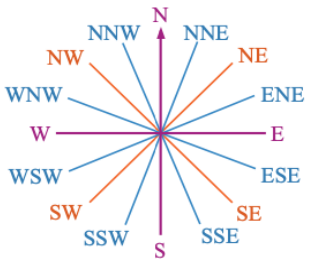
4 Here is a compass rose.

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

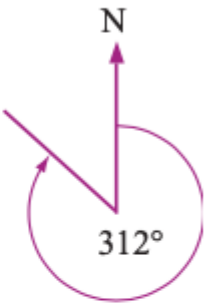
2 a 141°T **b** 242°T **c** 333°T
d 245°T **e** 306°T **f** 223°T

g 322°T **h** 157°T **i** 239°T
j 012°T **k** 201°T **l** 285°T

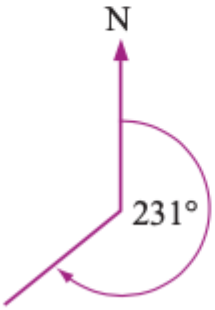
3 **a**

b

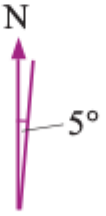
c



d



e



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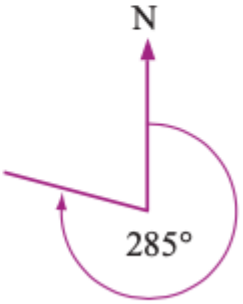
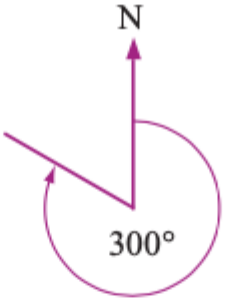
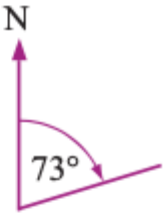


g

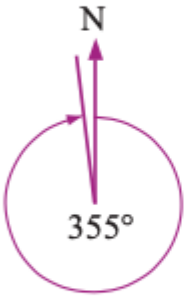
h



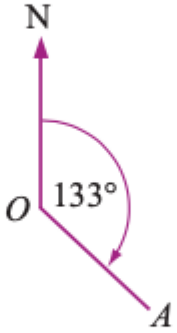
i



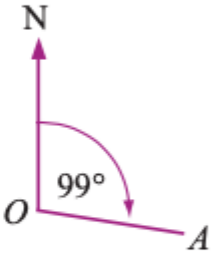
j



k



l



4 **a** **i** 90° **ii** 45° **iii** 45°
iv $22\frac{1}{2}°$ **v** $22\frac{1}{2}°$ **vi** $67\frac{1}{2}°$
b **i** 022.5°T **ii** 067.5°T **iii** 135°T
iv 157.5°T **v** 202.5°T **vi** 247.5°T
vii 292.5°T **viii** 315°T