Bearings

- Measuring three-figure bearings
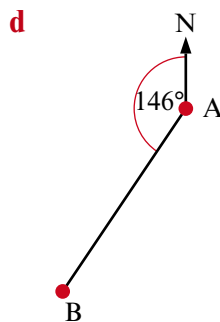- Drawing diagrams involving three-figure bearings

Keywords

You should know
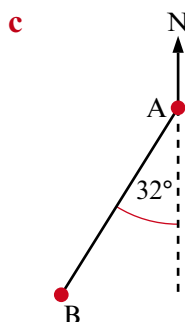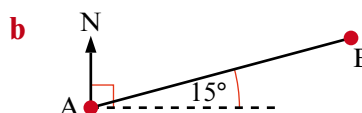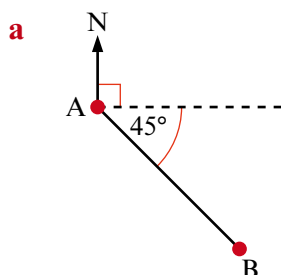
explanation 1a   explanation 1b   explanation 1c   explanation 1d

1 Calculate the three-figure bearing of B from A in each of these diagrams.

a

N

A

45°

B

b

N

A

15°

B

c

N

A

32°

B

d

N

146° A

B

**2** Without measuring, calculate the three-figure bearings of A from B in each of the diagrams in question **1** above.

From now on, you will need a protractor. Take North to be vertically up the page.

3 **a** Copy the diagram on squared paper.

   b Showing your construction clearly, measure the bearing of B from A.

   c Calculate the bearing of A from B. Show your working.

A

B
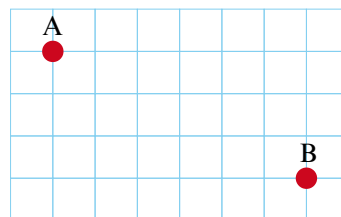
4 a Copy the diagram on squared paper.

b Showing your construction clearly, measure the bearing of Q from P.

c Calculate the bearing of P from Q. Show your working.

d Check your answer to part **c** by measuring.
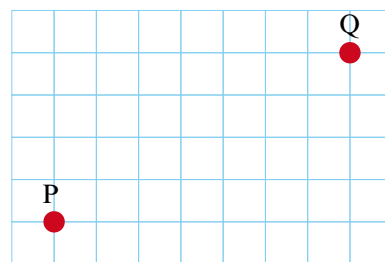
5 a Plot points L and M such that they are 7 cm apart and the bearing of M from L is 020°.

b Calculate the bearing of L from M. Show your working.

c Check your answer to part **b** by measuring.
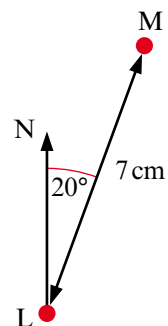
6 a Plot two points J and K, such that they are 3 cm apart and the bearing of K from J is 322°.

b Calculate the bearing of J from K. Show your working.

c Check your answer to part **b** by measuring.

7 Two points K and L are 6 cm apart. L is due north of K. A third point M is on a bearing of 045° from L and on a bearing of 022° from K.

a Plot the points K, L and M.

b To the nearest millimetre, measure the lengths KM and LM.

c Without measuring, calculate the angle LMK. Show your working.

d Calculate the bearing of L from M.
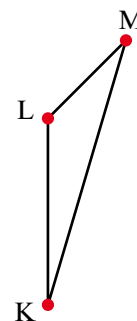
**8** Two points X and Y are 8 cm apart on the same horizontal line.
A third point Z is on a bearing of 155° from X and on a bearing of 225° from Y.
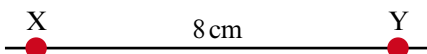
a Copy the diagram and locate the position of Z.

b To the nearest millimetre, measure the distance of Z from both X and Y.

c Without measuring, calculate the angle YXZ.

d Without measuring, calculate the angle XZY.

9 Points V and W are 6 cm apart.
The bearing of W from V is 120°.

a Draw a diagram showing the position of V and W.

b Construct the locus of points that are
equidistant from V and W.

c A point U is 4.5 cm from both V and W.
Mark on your diagram the possible positions for point U.

d Measure the bearing of V from each of the possible positions for U.

e Measure the bearing of W from each of the possible positions for U.

10 Town B is 6.50 km due east of town A.
Town C is 4.55 km from A and on a bearing of 125°.

a Using a scale of 1 : 130 000, draw a scale diagram showing the positions of
the three towns relative to each other.

b Measure the bearing of town B from town C.

c Measure the distance in centimetres between B and C on your diagram.

d Calculate the actual distance in kilometres between towns B and C.

11 Ahmed, Brian and Carlos are standing in a large field. Carlos is 210 m due
north of Brian. Ahmed is 135 m and on a bearing of 300° from Brian.

a Using a scale of 1 : 3000, draw a scale diagram showing the position of the
three boys relative to each other.

b What is the bearing of Carlos from Ahmed?

c What is the actual distance between Ahmed and Carlos?

12 Lighthouse L is 32.5 km due west of lighthouse M as shown in the diagram.
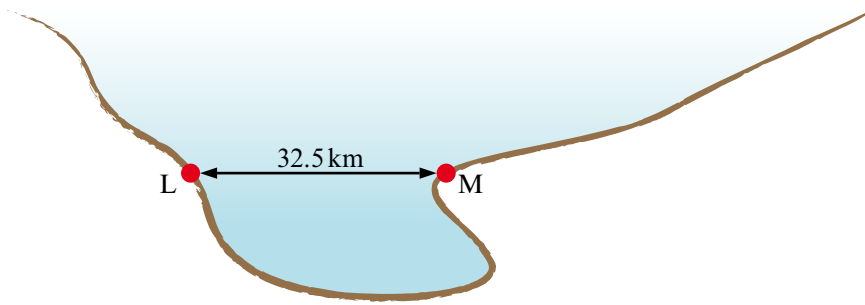
A distress signal is received from a boat B, out at sea. From L the distress signal is on a bearing of 010°. From M the distress signal is on a bearing 315°.

a Using a scale of 1 : 500 000, draw a scale diagram showing the position of L and M relative to each other.

b Using a protractor, find the position of the boat B.

c On your diagram measure the distance of the boat from each of the lighthouses, in centimetres.

d Calculate the actual distance, in kilometres, of the boat from each of the lighthouses.

13 Two observers, P and Q, are standing on a shoreline 9 km apart. The bearing of P from Q is 320°.

Boat X is 8.25 km due east of P.

Boat Y is 4.80 km on a bearing of 025° from Q.

a Using a scale of 1 : 150 000, draw a scale diagram of the positions of P, Q, X and Y relative to each other.

b Measure the distance XY on your diagram.

c Calculate the actual distance between boats X and Y.

d What is the bearing of X from Y?

e What is the bearing and actual distance of X from Q?

f What is the bearing and actual distance of Y from P?