

# Bearings

KS3 Maths · Follows the national curriculum

Name \_\_\_\_\_ Class \_\_\_\_\_ Date \_\_\_\_\_

## 1. Worked example

### Find the bearing of a point that is North-West.

Step 1 · Recall: North-West is halfway between North ( $000^\circ$ ) and West ( $270^\circ$ )

Halfway anticlockwise from North gives  $315^\circ$

Step 2 · Confirm with the clockwise rule

From North, turning clockwise  $315^\circ$  lands on North-West

**Answer:  $315^\circ$**

Check:  $315^\circ$  is  $45^\circ$  short of a full  $360^\circ$  turn — i.e.  $45^\circ$  anticlockwise from North, which is North-West ✓

## 2. Now try one with the steps

### Point Y is on a bearing of $050^\circ$ from point X. Find the bearing of X from Y.

Step 1 · Check if the original bearing is less than  $180^\circ$

Step 2 · Add  $180^\circ$

**Answer:**

## 3. Practice

Show your working. The marks tell you how much is expected.

1. What three rules must a bearing always follow? [2]

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2. Write the bearing for due East. [1]

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3. A ship sails on a bearing of  $135^\circ$ . Describe this direction in words. [2]

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4. Town B is on a bearing of  $070^\circ$  from Town A. Find the bearing of Town A from Town B (the back bearing). [3]

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5. Town C is on a bearing of  $310^\circ$  from Town D. Find the bearing of Town D from Town C. [3]

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6. A boat travels on a bearing of  $060^\circ$  for 8km, then changes to a bearing of  $150^\circ$  for 6km. Describe the angle turned at the change of direction. [3]

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7. Write the bearing for due South. [1]

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8. Write the bearing for due West. [1]

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9. Write the bearing for North-East. [1]

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10. The bearing of B from A is  $125^\circ$ . Find the bearing of A from B. [2]

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11. The bearing of P from Q is  $300^\circ$ . Find the bearing of Q from P. [2]

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12. The bearing of D from C is  $200^\circ$ . Find the bearing of C from D. [2]

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13. Jamal faces North and turns  $110^\circ$  anticlockwise. On what bearing is he now facing? [2]

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14. A map has a scale of 1 cm to 2 km. A hiker walks 9 km on a bearing of  $060^\circ$ . How long is this line on the map? [2]

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15. A boat sails 4 km due North and then 3 km due East. How far is it from where it started? [2]

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16. For the same boat (4 km North, then 3 km East), find the bearing of its finishing point from its start, to the nearest degree. [3]

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#### 4. Before you hand it in

##### Writing a bearing as '45°' instead of '045°'

Bearings must ALWAYS be written with three digits, padding with a leading zero if needed.  $45^\circ$  becomes  $045^\circ$ . This is a strict convention and full marks require it.

##### Measuring a bearing anticlockwise from North, or from a different reference direction

Bearings are ALWAYS measured clockwise from North — never anticlockwise, and never from East or any other direction. Practise tracing clockwise from North every time.

##### Finding a back bearing by subtracting from $360^\circ$ : back bearing of $070^\circ = 290^\circ$

The opposite direction is a half turn away, so add or subtract  $180^\circ$ :  $070^\circ + 180^\circ = 250^\circ$ .