The Panda Math Tutor

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Bearings

Solutions & Answer Key

Full worked solutions, marking scheme & answer key

IGCSE Mathematics

The Panda Math Tutor

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Companion to the *Student Worksheet*

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Note

About this booklet. These are the complete solutions to every question in the *Bearings — Student Worksheet*. Question numbers match exactly: understanding bearings B1–B6, compass points K1–K4, measuring and drawing D1–D4, angle rules G1–G5, back bearings R1–R5, geometry E1–E5, SOHCAHTOA H1–H5, sine and cosine rules T1–T5, unknown bearings U1–U4, applications A1–A5, the Mixed Review MR1–MR10, and the examination questions 1–8 of Part III.
Accuracy convention. Full calculator accuracy is carried through every intermediate step and rounding is done only at the end. Distances are given to 3 significant figures and bearings to the nearest degree unless stated otherwise, so an answer one unit away from the printed one is usually early rounding rather than a wrong method.
Part V collects the common mistakes to watch for, and Part VI is a quick answer key for fast marking.

4 Part IV — Complete Solutions

Note

Each solution names the rule being used and shows the steps in order. Depth is scaled to difficulty — brief for basic questions, fuller for the harder ones.

4.1 Solutions — Understanding Bearings

Solution B1

Every bearing is written with three digits, so leading zeros must be inserted where necessary:
(a) $\boxed{009^\circ}$ **(b)** $\boxed{074^\circ}$ **(c)** $\boxed{231^\circ}$ (already three digits)

Solution B2

A bearing must be:

1. measured **from North**;
2. measured **clockwise**;
3. written with **three digits**.

$$\boxed{\text{From North, clockwise, three figures.}}$$

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Solution B3

The angle itself is fine, but the *notation* is not: a bearing must always be written with three digits, so a two-digit value needs a leading zero.

$$\boxed{\text{The bearing of } B \text{ from } A \text{ is } 058^\circ.}$$

Solution B4

The turn starts at North and is clockwise, which is exactly how a bearing is defined, so the angle can be used directly:

$$\boxed{126^\circ}.$$

Solution B5

The turn is *anticlockwise*, so it cannot be used as a bearing directly. Subtract from a full turn:

$$360^\circ - 47^\circ = \boxed{313^\circ}.$$

Solution B6

Bearings must lie in the range 000° to 360°.
(a) 084° — $\boxed{\text{yes}}$, it is in range and correctly written.
(b) 375° — $\boxed{\text{no}}$, it is more than a full turn; subtracting 360° gives the equivalent bearing 015°.
(c) -020° — $\boxed{\text{no}}$, bearings are never negative; the equivalent bearing is 340°.
(d) 000° — $\boxed{\text{yes}}$, this is due North.

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4.2 Solutions — Compass Points

Solution K1

$$\text{N} = \boxed{000^\circ}, \quad \text{E} = \boxed{090^\circ}, \quad \text{S} = \boxed{180^\circ}, \quad \text{W} = \boxed{270^\circ}.$$

Each is a quarter turn (90°) further clockwise than the last.

Preview ends here

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