

# MATHS DIY

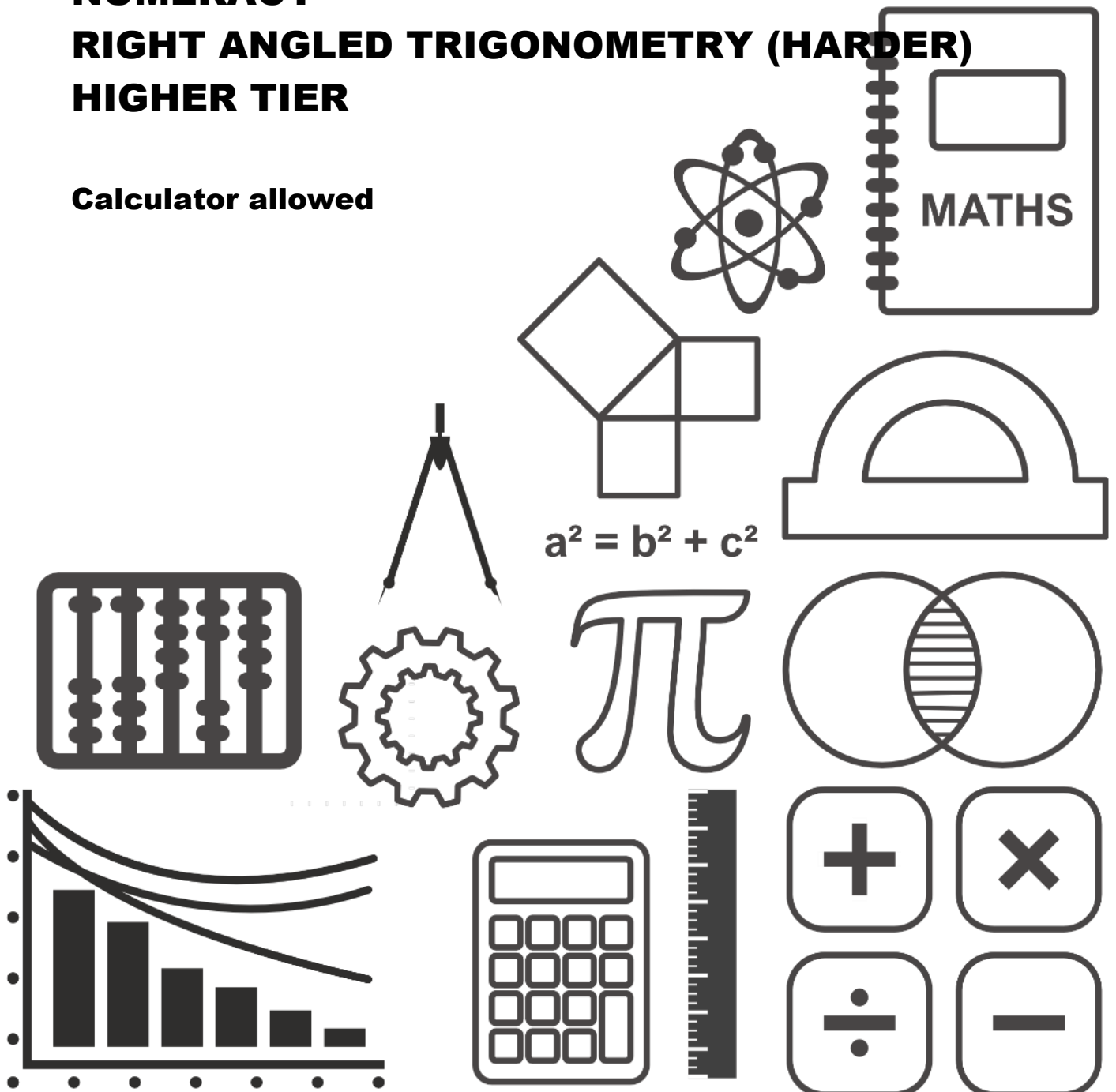
## GCSE TOPIC BOOKLET

### NUMERACY

### RIGHT ANGLED TRIGONOMETRY (HARDER)

### HIGHER TIER

Calculator allowed



- Llinos walks to the summit of Snowdon, passing the lake called Llyn Glaslyn. Her height above sea level increases by 485m from Llyn Glaslyn to the summit.

From the summit, she sees two small boats on Llyn Glaslyn. Both boats are in the same direction from the summit. The angles of depression of the two boats are  $41^\circ$  and  $27^\circ$ , as shown in the diagram.

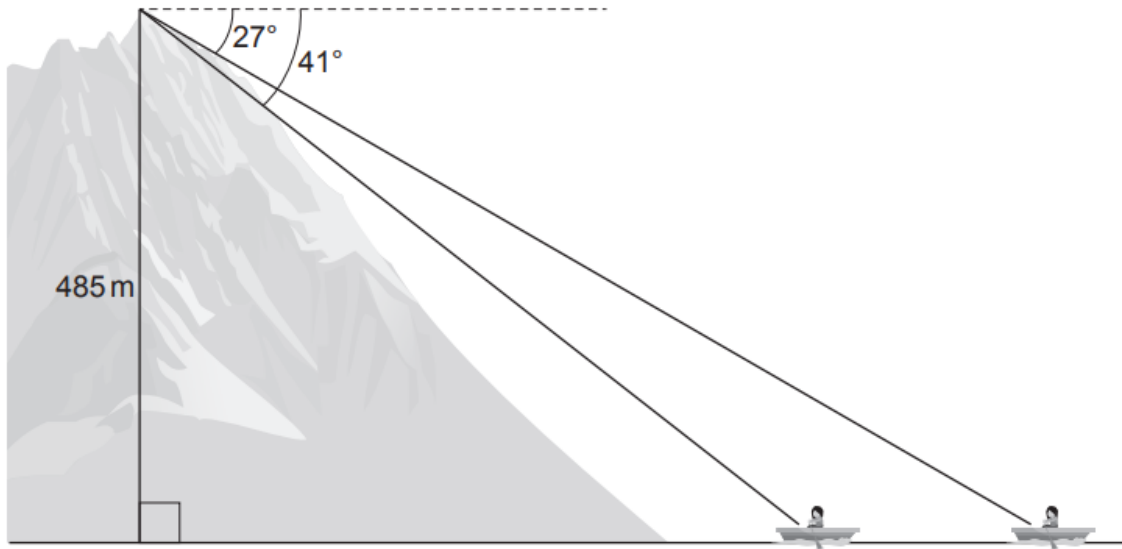


Diagram not drawn to scale

Calculate the distance between the boats.

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2. Heledd is the captain of a cargo ship. She is planning her next voyage.



Heledd has been given the following instructions for her voyage:

- From port *A*, sail 200 km due south to port *B*.
- From port *B*, sail due east to port *C*.
- From port *C*, sail on a bearing of  $318^\circ$  back to port *A*.

Use the space below to draw a sketch of the ship's voyage.



Calculate the distance from port *C* directly back to port *A*.

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3. The diagram below shows the locations of the ports of Lindat, Molk and Nuir. Lindat is due south of Nuir, and Nuir is due west of Molk.

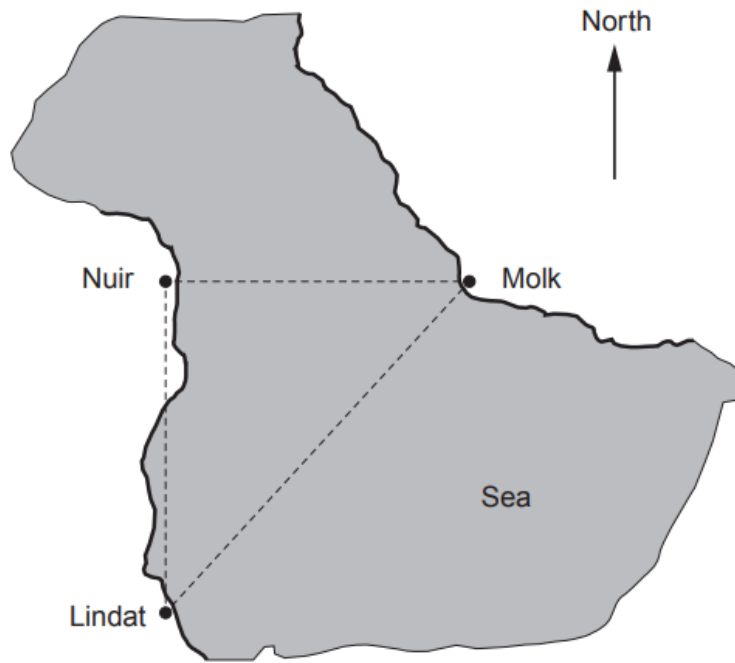


Diagram not drawn to scale

Agnetha lives in Molk. She travels from Molk to Lindat by ship.

- Lindat is 24 km due south of Nuir.
- The ship sails directly to Lindat on a bearing of  $211^\circ$ .
- The ship has an average speed of 20 km/h.
- The ship leaves at 11:45 a.m.

Calculate Agnetha's arrival time in Lindat.

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