Intermediate Tier Numeracy Right Angled Triangle Questions – Trigonometry

The diagram shows the route a dolphin swam from Port Quay to Rig Bay and then to Jay Cliff.

Diagram not drawn to scale

Rig Bay is on a bearing of 232° from Port Quay.
The distance from Port Quay to Rig Bay is 3·2 km.
Calculate how far the dolphin swam altogether [5]

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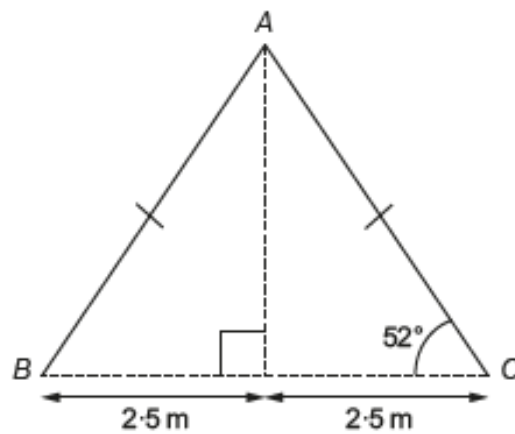
The diagram below shows where Levi wants to attach a string of lights to his house.

String of lights:

Levi wants to attach a single string of lights from B to A and then from A to C.
The diagram below shows the measurements Levi has taken.

A

52°

B

C

2·5 m   2·5 m

Diagram not drawn to scale

He spends £410 at the electrical store buying a string of lights.
After putting up the lights, Levi finds he has 6 metres of the string of lights left over at one end.

How much did the electrical store charge Levi, per metre, for the string of lights?   [6]

12.

Ursula is lying on her surfboard 180 metres away from the foot of a vertical cliff.
The height of the cliff is 146 metres.
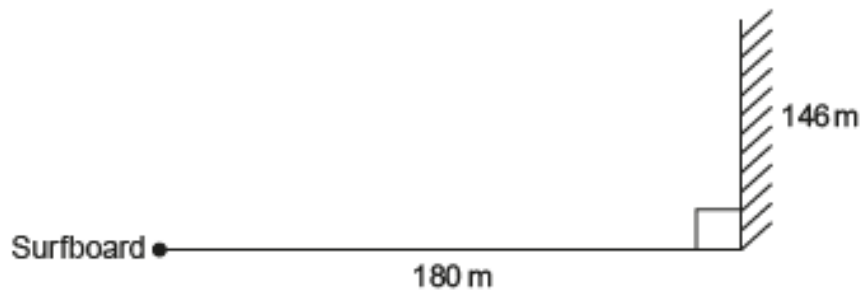
Diagram not drawn to scale

Ursula was told that if the angle of elevation of the top of the cliff from her lying position is between 42° and 45°, it is safe for her to attempt to stand on her surfboard.
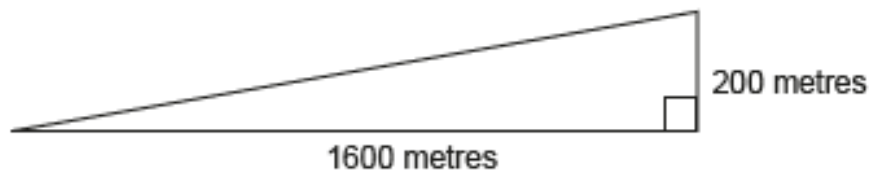
Calculate the angle of elevation of the top of the cliff from Ursula's position lying on her surfboard.

State whether it is
  • safe for Ursula to attempt to stand, or
  • not safe as she is too near the cliff, or
  • not safe as she is too far out at sea. [4]

(b) The diagram shows the cross-section of one part of her run.

200 metres

1600 metres

Diagram not drawn to scale

Calculate the angle of elevation of the road. [3]

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(c)

B

300 metres
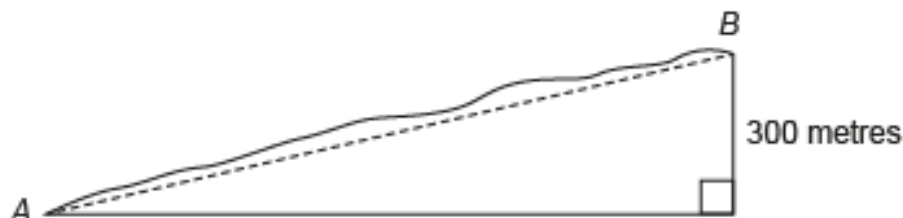
A

Diagram not drawn to scale

Gwenda runs on another section of uneven road from *A* to *B*.
The rise in this section of the road is 300 metres.
The angle of elevation of *B* from *A* is 10°.

(i)   Calculate an estimate of how far Gwenda has run.
      State any assumption you have made. [4]

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Assumption: ....

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(ii) What is the impact of your assumption on your answer? [1]

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