

The diagram below shows the position of three towns.

Lowtown is due west of Midtown.

The distance from

- Lowtown to Midtown is 75 kilometres.
- Midtown to Hightown is 110 kilometres.
- Hightown to Lowtown is 85 kilometres.



Is Hightown directly north of Lowtown?

Justify your answer.

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Answer:

$85^2 + 75^2 \neq 110^2$ so by the Converse of Pythagoras, the triangle is not right-angled.
Hightown is not therefore directly north of Lowtown.