Example

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2022

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# Alternative formats

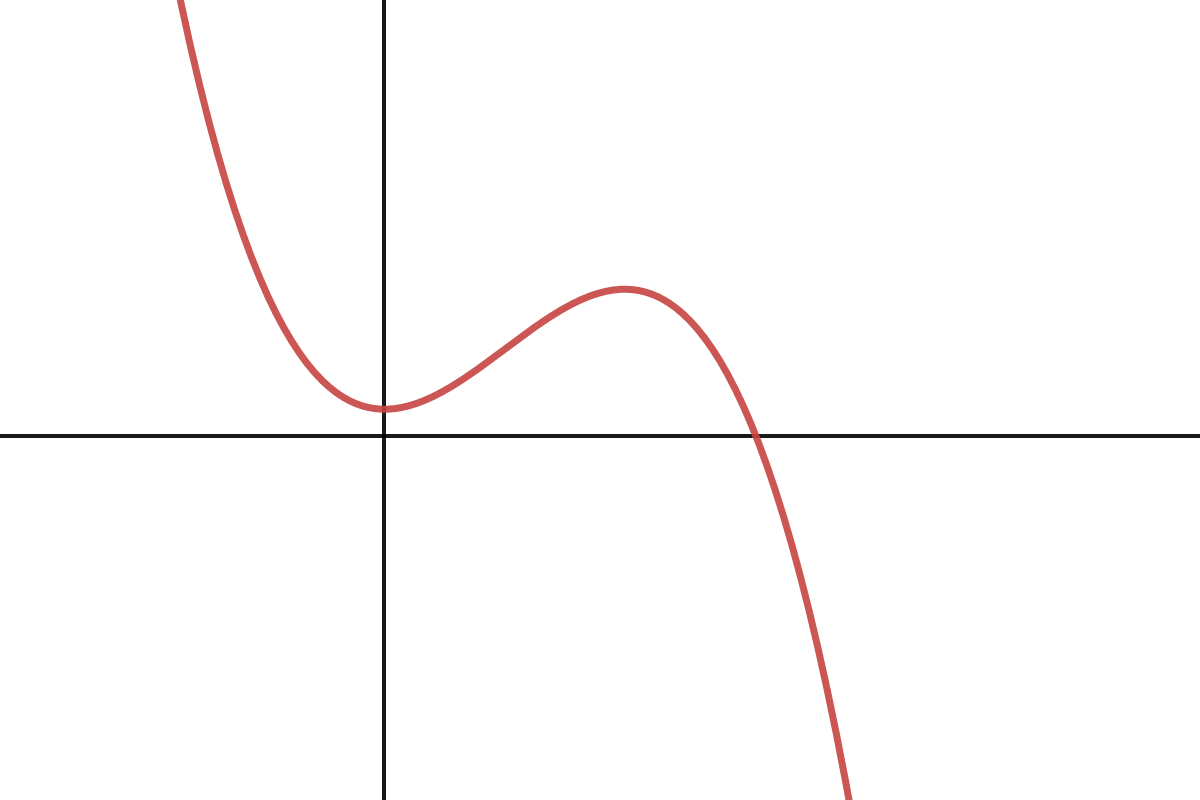
It is recommended that you [read this resource on the web](./arclengthInR.html) but you can also download [this resource as a PDF](./arclengthInR.pdf) or download [this resource as a Word document](./arclengthInR.docx).

# Arc length

We often need to know the length of a curve between two points, e.g. what is the length of the ropes holding Clifton suspension bridge (see Exercise Sheet 3).

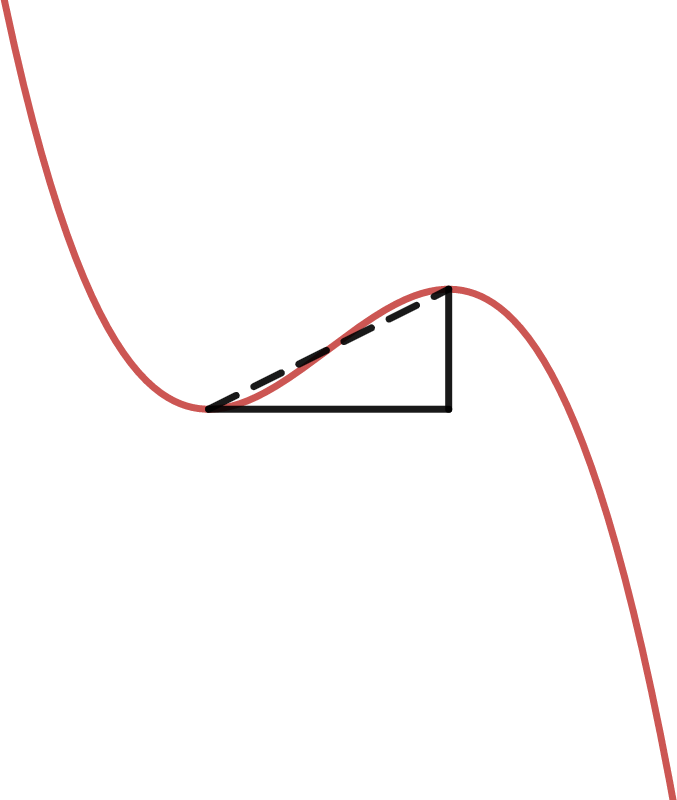
## Visualisation

Given a curve



Accessible interactive graph at <https://www.desmos.com/calculator/t8dz6vlmnz>

Let be the arc length and a short section of it.



Accessible interactive graph at <https://www.desmos.com/calculator/g5duc4kmfp>

## Derivation of Arc Length

By Pythagoras’ Theorem,

As this becomes an identity

The arclength between and is then