

Same or different?

Teacher notes

Why use this resource?

This resource encourages students to consider how the limits and function of a summation can be changed but the sum remain the same. This can lead into generalisations of summation.

Possible approach

Allow students to think about the problem, encouraging them to consider what's the same and what's different about each of the summations.

Using the ideas discussed, ask students to make up three summations of their own which have the same sum with either different functions or different limits.

Some students may wish to generalise what they have noticed and they should be encouraged to justify their generalisations.

Key questions

- How can the limits be changed but the sum remain the same?
- How can the function be changed but the sum remain the same?

Possible support

Does multiplying the function by a constant change the sum?

Does adding a constant to the function change the sum?

How does each of these transformations affect the sum?

Possible extension

Can you justify any generalisations you have made?

How does this topic relate to integration? Can your generalisations be applied to integration?