

# Questions: Introduction to sigma notation

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## Summary

Questions relating to the guide on introduction to sigma notation.

*Before attempting these questions, it is highly recommended that you read [Guide: Introduction to sigma notation](#).*

## Q1

Calculate the value of the following sums in sigma notation. You may use the properties of sums but they should not be necessary.

1.1.  $\sum_{i=1}^{10} 2i$

1.2.  $\sum_{i=2}^{11} i$

1.3.  $\sum_{i=3}^6 3i$

1.4.  $\sum_{i=1}^5 i^3$

1.5.  $\sum_{i=2}^6 5i^2$

1.6.  $\sum_{i=3}^6 2$

1.7.  $\sum_{i=1}^6 j$

## Q2

Express the following using sigma notation. Note that there are multiple correct answers for some of the questions. It is recommended to use  $i$  as your variable so that your answers will align with those provided.

- 2.1.  $3 + 6 + 9 + 12$
- 2.2.  $-1 - 2 - 3 - 4$
- 2.3.  $0 + 3 + 9 + 27 + 81$
- 2.4.  $1 + 1 + 1 + 1 + 1$
- 2.5.  $6 - 12 + 18 - 24$
- 2.6.  $8 + 16 + 12 + 4$
- 2.7.  $25 + 20 + 15 + 10 + 5$

### Q3

Using the properties listed in the guide write the following sums in their simplest form; that is, with as little information as possible within the summation.

- 3.1.  $\sum_{i=1}^n 2i$
- 3.2.  $\sum_{i=1}^n 2i + \sum_{j=1}^n 2i$
- 3.3.  $\sum_{i=0}^n 4i + \sum_{i=1}^n 2i$
- 3.4.  $\sum_{i=2}^n 2i - \sum_{i=1}^n i$

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After attempting the questions above, please click [this link](#) to find the answers.

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### Version history and licensing

v1.0: initial version created 08/23 by Ifan Howells-Baines, Mark Toner as part of a University of St Andrews STEP project.

- v1.1: edited 05/24 by tdhc.

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