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*](../studyguides/sigmanotation.qmd)*.*

## 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$

[After attempting the questions above, please click this link to find the answers.](../answers/as-sigmanotation.qmd)

## 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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