# Answers: Introduction to sigma notation

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**Summary**

Answers to questions relating to the guide on introduction to sigma notation.

*These are the answers to Questions: Introduction to sigma notation.*

**Please attempt the questions before reading these answers!**

## Q1

1.1. $\sum_{i=1}^{10} 2i = 110$

1.2. $\sum_{i=2}^{11} i = 65$

1.3. $\sum_{i=3}^{6} 3i = 54$

1.4. $\sum_{i=1}^{5} i^3 = 225$

1.5. $\sum_{i=2}^{6} 5i^2 = 455$

1.6. $\sum_{i=3}^{6} 2 = 8$

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

## Q2

2.1. $3 + 6 + 9 + 12 = \sum_{i=1}^{4} 3i$

2.2. $-1 - 2 - 3 - 4 = \sum_{i=1}^{4} -i$

2.3. $0 + 3 + 9 + 27 + 81 = \sum_{i=0}^{4} 3^i$

2.4. $1 + 1 + 1 + 1 + 1 = \sum_{i=1}^{5} 1$

2.5. $6 - 12 + 18 - 24 = \sum_{i=1}^{4} (-1)^{i+1} 6i$

2.6. $8 + 16 + 12 + 4 = \sum_{i=1}^{4} 4i$

2.7. $25 + 20 + 15 + 10 + 5 = \sum_{i=1}^{5} 5i$

## Q3

3.1. $\sum_{i=1}^{n} 2i = 2\sum_{i=1}^{n} i$

3.2. $\sum_{i=1}^{n} 2i + \sum_{j=1}^{n} 2i = 4\sum_{i=1}^{n} i$

3.3. $\sum_{i=0}^{n} 4i + \sum_{i=1}^{n} 2i = 6\sum_{i=1}^{n} i$

3.4. $\sum_{i=2}^{n} 2i - \sum_{i=1}^{n} i = -1 + \sum_{i=2}^{n} i$

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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.