

Methods for Describing Sets of Data

2.2 Summation Notation

1. Use the following values to evaluate the expression: { 1, 6, -7, 0, 2, 9 }

$$\left(\sum_{i=1}^6 x_i \right)^3$$

2. Use the following values to evaluate the expression: { 2, 6, -1, 9, 8, 7 }

$$\sum_{i=1}^6 x_i^2$$

3. Use the following values to evaluate the expression: { -5, 0, -3, 4, 2, 1, 3 }

$$\sum_{i=1}^7 x_i^2 - \left(\sum_{i=1}^7 x_i \right)^2$$

4. Use the following values to evaluate the expression: { 21, -10, 19, 18, 13 }

$$\sum_{i=1}^5 (x_i - 10)^2$$

Answers:

- 1331; because it becomes 11^3
- 235; because it becomes $2^2 + 6^2 + \dots + 7^2 = 4 + 36 + \dots + 49 = 235$
- 60; because it becomes $(-5)^2 + 0^2 + \dots + 3^2 - (-5 + 0 + \dots + 3)^2 = 64 - 2^2 = 60$
- 675; because it becomes $11^2 + (-20)^2 + 9^2 + 8^2 + 3^2 = 675$