

Math Sheet

Name: _____ Date: _____

Summation Properties

Evaluate each sum using linearity, constant sums, and power-sum identities. Show your reasoning. Supplied sums use the same bounds as the question.

1. Given: the sum of $u(i)$ is 34, and the sum of $v(i)$ is 34, each from $i=5$ through 10.

$$\sum_{i=5}^{10} (4 \cdot u(i) + v(i) - 3)$$

Sum = _____

2.

$$\sum_{j=4}^{10} (-2 + 6 \cdot j)$$

Sum = _____

3.

$$\sum_{k=2}^6 (-2 + 3 \cdot k + 4 \cdot k^2)$$

Sum = _____

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4. Given: the sum of $u(n)$ is -6, and the sum of $v(n)$ is 9, each from $n=1$ through 7.

$$\sum_{n=1}^7 (6 \cdot u(n) + v(n) - 2)$$

Sum = _____

5.

$$\sum_{i=4}^{15} (1)$$

Sum = _____

6.

$$\sum_{j=5}^{18} (2 + 3 \cdot j)$$

Sum = _____

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7. Given: the sum of $u(k)$ is -21, and the sum of $v(k)$ is 14, each from $k=3$ through 16.

$$\sum_{k=3}^{16} (- 5 \cdot u(k) - 2 \cdot v(k) + 6)$$

Sum = _____

8.

$$\sum_{n=4}^{17} (- 5 + n + 2 \cdot n^2 - 4 \cdot n^3)$$

Sum = _____

9.

$$\sum_{i=2}^9 (1)$$

Sum = _____

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10. Given: the sum of $u(j)$ is 30, and the sum of $v(j)$ is 30, each from $j=4$ through 12.

$$\sum_{j=4}^{12} (u(j) - v(j))$$

Sum = _____

- 11.

$$\sum_{k=1}^7 (2 - 3 \cdot k + 3 \cdot k^2)$$

Sum = _____

- 12.

$$\sum_{n=3}^6 (-5 - n + 4 \cdot n^3)$$

Sum = _____