

Summation Properties Worksheet

Directions. Use the *properties and formulas* discussed in class to evaluate each of the following summations, and answer the related questions.

1. $\sum_{i=1}^{14} (3i + 2)$

2. $\sum_{i=1}^{12} (-2i^2 + 6)$

3. $\sum_{k=1}^{22} (-2k + 5)$

4. $\sum_{i=1}^{10} (i^3 - 2)$

5. $\sum_{n=8}^{24} (7n - 8)$

6. $\sum_{i=1}^{38} 18$

7. $\sum_{i=1}^{18} (i - 3)^2$

8. $\sum_{i=1}^{12} [(i - 7)(i + 7)]$

9. $\sum_{a=1}^7 (a-2)^3$

10. $\sum_{i=89}^{147} 0.7i - 32$

11. Consider the series $-6 - 2 + 2 + 6 + \dots$. Find the number of terms, n , if $S_n = 640$.

12. Consider the series $-6 - 3 + 2 + 9 + \dots$. Find the number of terms, n , if $S_n = 1384$.

13. Consider the series $212 + 199 + 186 + 173 + \dots$. Find the number of terms, n , if $S_n = -4488$.

14. Simplify

$$\sum_{k=0}^n (k^2 - (k+1)^2)$$

15. Simplify

$$\sum_{k=1}^n \left(\frac{1}{k+1} - \frac{1}{k} \right)$$