**Summations worksheet**

1. Rewrite the following by separating off the final term:
2. Write as a single summation.
3. Write each of the following using summation notation. (Note: )
5. Write each of the following as a single summation:
6. Substitute variable k for j, where k = j - 4, in the summations a) and b) below:
8. Transform the following summation by making the change of variable: .
9. Evaluate the following summations: