Area Notes
Section 4.2b

In this section, we are going to learn some new symbols that will help us to sum up large quantities of terms. Identify the parts of the sigma notation by filling in the blanks below.

Now, we're going to practice using the notation. Write out the mathematical meaning of each example of sigma notation below.

1. \( \sum_{i=1}^{6} i \)

2. \( \sum_{j=3}^{7} j^2 \)

3. \( \sum_{k=1}^{n} \frac{1}{n^2 + 1} \)

4. \( \sum_{i=1}^{n} f(x_i) \Delta x \)
Now, we’re going to practice rewriting sums in sigma notation. Try the examples below.

1. \( \frac{1}{5} + \frac{2}{5} + \frac{3}{5} + \frac{4}{5} \)

2. \( 7(1^2) + 7(2^2) + 7(3^2) + 7(4^2) + 7(5^2) \)

3. \( \frac{1^3}{n^4} + \frac{2^3}{n^4} + \frac{3^3}{n^4} + \frac{4^3}{n^4} + \ldots + \frac{n^3}{n^4} \)

4. \( \frac{5(2 \cdot 1)^2}{n^3} + \frac{5(2 \cdot 2)^2}{n^3} + \frac{5(2 \cdot 3)^2}{n^3} + \ldots + \frac{5(2 \cdot n)^2}{n^3} \)