Homework Assignment: 1
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1. Summation Practice

   (a)

$$\sum_{k=3}^{n+1} 1 = n - 1$$

   (b)

$$\sum_{i=1}^{100}(4 + 3i)$$

$$n(a_1 + \frac{d(n-1)}{2}) \begin{cases} a_1 = 7 \\ n = 100 \\ d = 3 \end{cases} \implies 100(7 + \frac{3(100-1)}{2}) = 15550$$

   (c)

$$\sum_{i=1}^{200}(i-3)^2 = \sum_{i=1}^{200}(i^2 - 6i + 9)$$

$$\sum_{i=1}^{200} i^2 - 6($$

$$\textstyle\sum_{i=1}^{200} i) + \sum_{i=1}^{200} 9 = \frac{200(200+1)(400+1)}{6} - 6\left\{\frac{200(200+1)}{2}\right\} + 9(200) = 2567900 \sum_{i=10}^{80}(i^3 + i^2)$$

(d)

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

(e) Create a summation for the following sequence: 2+4+8+16+32+64

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

(f) Create a summation for the following sequence: 2+6+18+54+162

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

(g) Create a summation for the following sequence: (-4)+(-1)+2+5+8+11+14

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

2. Order of Growth

   (a)

$$\sum_{i=2}^{n-1} lgi^2$$

   (b)

$$\sum_{i=0}^{n-1} \sum_{j=0}^{i-1} (i+j)$$