1. Show that $2 + 4 + 6 + \ldots + 2n$ is $O(n^2)$.

2. Show that $1^2 + 2^2 + 3^2 + \ldots + n^2$ is $O(n^3)$.

3. Show that $\sum_{i=1}^{n} (4i - 9)$ is $O(n^2)$.

5. Show that the following algorithm is $O(n^3)$:

   ```
   for i = 1, n
       for j = i, n
           for k = j, n
               print 'hello'
           endfor
       endfor
   endfor
   ```