1. Evaluate the following sums. Show your work.

a) \[ \sum_{j=0}^{5} j^2 \]

b) \[ \sum_{k=0}^{20} (-1)^k \]

c) Let \( f(x) = \sum_{k=0}^{8} x^k \). Write \( f'(x) \) in sum notation.

2. Using a geometrical argument, compute \( \int_{0}^{8} (x - 2) \, dx \).