1. Prove that a set with $n \geq 2$ elements has $n(n - 1)/2$ subsets of size 2.

2. Prove that $\sum_{k=0}^{n} k = n(n + 1)/2$

3. Prove that $\sum_{k=0}^{n} k^2 = \frac{n(n+1)(2n+1)}{6}$

4. Prove that $n > 0 \rightarrow (n^3 + 2n) \% 3 = 0$ (see pages 342-344)

5. Which amounts of money can be formed by using two-dollar bills and five-dollar bills? Prove your answer using strong induction.