Mathematics 554 Homework.

In $Notes\ on\ Analysis\ do\ Problems\ 1.1–1.7,\ 1.9–1.13,\ and\ 1.17.$

Problem 1. Show that

$$x^3 = x^{\underline{3}} + 3x^{\underline{2}} + x^{\underline{1}}$$

and use this to find a formula for

$$\sum_{k=1}^{n} k^3.$$