

- **Show all your work.** Show it on this paper.
- No electronics, no notes, no book.

(1) (4 pts) What is the difference between a sequence and a generating function?

(2) (4 pts) If I ask you for the sequence $h_n = c_1(-3)^n$ that satisfies $h_0 = 1$, what is your answer?

(3) If I ask you for the generating function of the same sequence $h_n = c_1(-3)^n$ with $h_0 = 1$, what is your answer?

(a) (4 pts) Before simplifying the generating function.

(b) (4 pts) After simplifying the generating function.