Algorithm Homework - Week 9

1. Please upload a picture of you participating the online meeting of the course (or watching playbacks), including yourself and your devices.

2. Prove by definition: $2n^2 - 3n = O(n^2)$.

3. (pp. 61, 3-1 a.) Let

$$p(n) = \sum_{i=0}^{d} a_i n^i,$$

where $a_d > 0$, be a degree-d polynomial in n, and let k be a constant. Use the definitions of the asymptotic notations to prove:

If $k \geq d$, then $p(n) = O(n^k)$.

4. Show that the majority element problem can be reduced to the sorting problem, following the three steps of reduction.