Question 0.1. Given a set $S$ of $n$ items, where item $i$ has weight $w_i \geq 0$, value $v_i \geq 0$, and a bound $W \geq 0$. Design an $O(nW)$ time algorithm to select a subset $T$ of $S$ so that $\sum_{i \in T} w_i \leq W$ and $\sum_{i \in T} v_i$ is maximized. Assume that the weights and values are integral.

This is the example on pg. 271 of the Kleinberg & Tardos book.

Question 0.2. Given a total of $n$ courses each with a grade on a scale of $[1, g]$ ($g > 1$) and a map $f$ such that $f(i, t)$ is the grade one obtains by studying $t$ hours for course $i$. Suppose $H > 0$ hours are available for studying. Design a polynomial (in $g, n, H$) algorithm to determine the maximum average grade. Assume that $f$ is non-decreasing w.r.t. $t$, also assume that $g, H$ are integers and that you spend an integer number of hours on each course.

This is problem 20 on pg. 329 of the Kleinberg & Tardos book.