Solution to Problem 1

Task 1. Provide two examples:

• An example of an algorithm which is formally feasible, but not practically feasible.

• An example of an algorithm which is practically feasible but not formally feasible.

These examples must be different from the examples given in a handout; it is OK if they are similar to the handout, but they should not be identical.

Solution:

• An example of an algorithm which is formally feasible, but not practically feasible: $t(n) = 10^{100}$. This is a constant, so it is a polynomial and thus formally feasible, but it is clearly not practically feasible.

• An example of an algorithm which is practically feasible but not formally feasible: $t(n) = \exp(10^{-100} \cdot n)$. This is an exponential function, so it grows faster than any polynomial, but for reasonable-size $n$, this value is close to 1 and is, thus, practically feasible.