

## Assignment 3

**Issue date:** 09 Nov 2016    **Due date:** 16 Nov 2016

### Exercise 1.

Show that for all time bounds  $t : \mathbb{N} \rightarrow \mathbb{N}$  satisfying  $t(n) \geq n$ , the following holds:

$$\text{multiT-NTIME}(t) \subseteq 2\text{T-NTIME}(t)$$

### Exercise 2.

Show that for all time bounds  $t : \mathbb{N} \rightarrow \mathbb{N}$  satisfying  $t(n) \geq n$ , the following holds:

$$\text{RAM-DTIME}(t) \subseteq \text{multiT-DTIME}(O(t^3))$$

### Exercise 3.

Show that for all time bounds  $t : \mathbb{N} \rightarrow \mathbb{N}$  satisfying  $t(n) \geq n$ , the following holds:

$$\text{multiT-NTIME}(t) \subseteq \text{RAM-NTIME}(O(t))$$