

## 2. Parallel Quicksort

(a) Show that Quicksort with sequential partitioning, but parallel recursive sorting, is indeed  $\mathcal{O}(n)$ , by solving the recurrence relation shown in lecture:  $T(n) = n + T(n/2)$ .

(b) Show that a completely parallel Quicksort, with parallel partition and recursion, is  $\mathcal{O}(\log^2(n))$ , by solving the recurrence relation shown in lecture:  $T(n) = \mathcal{O}(\log(n)) + T(n/2)$ .