

# Final Review Problems

June 8, 2002

1. CLRS 9.3-6,  $k$ th Quantiles
2. CLRS 8-4, Water Jugs
3. CLRS 4-2, Missing Integer (Hint try to apply a binary search method)
4. A ski rental agency has  $m$  pairs of skis. The height of the  $i$ th pair of skis is  $S_i$ . There are  $n$  skiers who wish to rent skis. The height of the  $i$ th skier is  $H_i$ . Each skier wishes to obtain a pair of skis whose height matches his own height as closely as possible. Describe an efficient algorithm to assign skis to skiers so that the sum of the absolute differences of the heights of each skier and his skis is minimized. Analyze the running time of your algorithm.
5. CLRS 24.3-4, Single-Source shortest path adaptation.