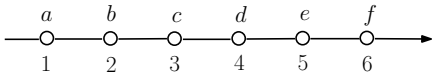
CSCI3160: Quiz 3

Name: Student ID:

Problem 1 solution. Independently set each variable of $\mathcal{X}$ to 0 or 1 with equal probability.

Problem 2 solution. $\{6, 7, 8\}, \{3, 4, 5\}$.



Problem 3 solution: 1. $C^* = \{b, e\}$ and $r(C^*) = 1$.
2: Let $C = \{o_1, o_2\}$ be the set returned by the k-center algorithm. Assume that o_1 (or o_2, resp.) is the first (or the second, resp.) point added into C.

When $o_1 \in \{a, b, c\}$, o_2 must be f. We have $r(C) = 2$.

When $o_1 \in \{d, e, f\}$, o_2 must be a. We also have $r(C) = 2$.

Therefore, the radius of the centroid set returned by the k-center algorithm is always $2 \cdot r(C^*)$.