

Problem 1

(a)

We note that the maximum of routers that may remain on in any 4×4 grid, no matter how many routers are available, is 9.

Thus, we only need to check all subsets of the n routers that are size 9 or less.

We can do this in $O(n^9)$ time, which is polynomial in the number of routers.

(b)

(c)

(d)

Problem 2

(a)

(b)

(c)

(d)