① memoized-gas_station (p, n) // p is array of
   initialize r[n];   // prices at each location
   for i = 0 to n
       r[i] = -∞
   return memo_aux(p, n, r)

memo_aux(p, n, r)
   if r[n] ≥ 0
       return r[n]
   if n == 0
       q = 0
   else
       q = -∞
       for i = 1 to n
           q = Max(q, p[i] + memo_aux(p, n-i, r))
   r[n] = q
   return q

② while cost ≤ M
       find two patents p_i & p_j such
       that $v_i - m$ and $v_j - m_j$ is maximal
       insert those patents into collection
       increment cost

③ palindrome (i, j, x) // find palindrome from ith
                        // character to jth character
                        // x is array of characters
   if $i == j$
       return 1;
   if $(x[i] == x[j])$
       return palindrome $(i+1, j-1, x) + 1$

   return max $($palindrome $(i, j-1, x),$ palindrome $(i+1, j, x))$

④ // sort points from left to right using quicksort
   $(r_1, \ldots r_n)$ is set of points from left to
   right. $\ell(i, j)$ gives shortest path from p_i to
   p_j. $\ell(1, 2) = |r_1 - p_2|$. To determine $\ell(i, j)$,
   p_{j-1} most either precede p_j going right or
   be the rightmost point of a subpath traveling
   left. So length is $\ell(i, j-1) + |p_{j-1} - p_j|$ if $i < j-1$
   The shortest path from $j-1$ to j could be different
   from $\ell(j-1, j)$ so we test all values from 1 to
   1 to $j-1$
       $\ell(j-1, j) = \min_{1 \le k \le j-1} \left(\ell(k, j-1) + |p_k - p_j| \right)$