

Constraint: for any  $\{v_1, v_2, \dots, v_n\}$  in ascending order,  
 $v_{i+1}$  has to be integer multiple of  $v_i$  - (not one).

<sols>

Suppose a value  $X$  and  $\arg \max \{v_i\} = k$ ,  $v_k \leq X$

if the constraint holds and we choose  $c_1, c_2, \dots, c_{i-1}, c_i$

for all  $\{v_i\}$

if  $c_1 v_1 + c_2 v_2 + \dots + c_{i-1} v_{i-1} > v_k$ , then we can change it

into  $v_k$  (coin change)

However, if  $v_k$  is not multiple of  $v_{k-1}$ , we might

not be able to change that since some change  $< v_i$  might be left.

Thus, we know  $v_k$  must be multiple of  $v_{k-1}$

So we know that the constrai