

# Ada and Coins

Ada the Ladybug has several coins in her wallet. She is wondering, how many different values [sum of some subset of coins] is she able to make (in given range).

## Input

The first line contains two integer numbers  $1 \leq N \leq 10^4$ ,  $1 \leq Q \leq 5 \cdot 10^5$ , the number of coins and number of queries.

The next line contains  $N$  integer numbers  $1 \leq A_i \leq 10^5$ , the values of coins in Ada's wallet.

Afterward,  $Q$  lines follow, each containing two integers  $1 \leq B \leq E \leq 10^5$ , beginning and end of range, for which ada wants to know the answer

## Output

For each query, output the number of distinct values Ada can generate in given range.

## Example Input

```
10 10
1 2 2 3 5 30 31 90 100 100
1 1
1 5
3 6
2 9
30 100
1 10000
30 32
5 12
9 29
190 220
```

## Example Output

```
1
5
4
8
40
231
3
8
5
25
```

## Output Subsets

```
[ 1, 1]: 1
[ 1, 5]: 1 2 3 4 5
[ 3, 6]: 3 4 5 6
[ 2, 9]: 2 3 4 5 6 7 8 9
[ 30, 100]: 30 31 32 33 34 35 36 37 38 39 40 41 42 43 44 61 62 63 64 65 66 67 68 69 70 71 72 73 74 90 91 92 93 94 95 96 97 98 99 100
[ 1,10000]: 1 2 3 4 5 6 7 8 9 10 11 12 13 30 31 32 33 34 35 36 37 38 39 40 41 42 43 44 61 62 63 64 65 66 67 68 69 70 71 72 73 74 90 91 92 93 94 95 96 97 98 99 100 101 102 103 104 105 106
[ 30, 32]: 30 31 32
[ 5, 12]: 5 6 7 8 9 10 11 12
[ 9, 29]: 9 10 11 12 13
[190, 220]: 190 191 192 193 194 195 196 197 198 199 200 201 202 203 204 205 206 207 208 209 210 211 212 213 220
```