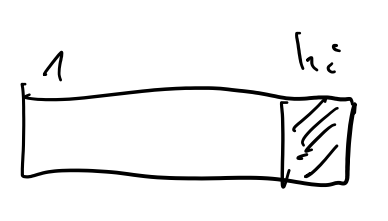
R-694

Saturday, 23 January 2021 10:49

$k_1 \dots k_n$ ← friends

$c_1 \dots c_m$ ← presents

$k_i \to c_j$, $j \le k_i$ present OR c_{k_i} \$



min cost

2 2 3 3 4 → 3 5 5 12 12 → 35

3 5 12 20

2 2 3 3 4 → 5 5 12 12 20, 5 3 → 30

1 2 3 4 5

10 40 80 160 250 → 40 10 → 180

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3 $lcm(3,12) = 12$

12 $gcd(3,12) = 3$

$\frac{12}{3} = 4 = 2^2$

$p_1^{l_1} \dots p_n^{l_n}$

$p_1^{r_1} \dots p_n^{r_n}$

$lcm = p_1^{max(l_1,r_1)} \dots p_n^{max(l_n,r_n)}$

$gcd = p_1^{min(l_1,r_1)} \dots p_n^{min(l_n,r_n)}$

$\frac{lcm}{gcd}$ = perfect sq. iff $\forall_{i \in [1,n]} \left(max(l_i,r_i) - min(l_i,r_i)\right) \% 2 = 0$

⇕

$max(l_i,r_i) \% 2 = min(l_i,r_i) \% 2$

6 8 4 2

$2 \cdot 3$ 2^3 2^2 2^1 (adjacent)

$2 \cdot 3$ 2^4 2^2 2^4 (adjacent)

2^{10}

p^0 p^1

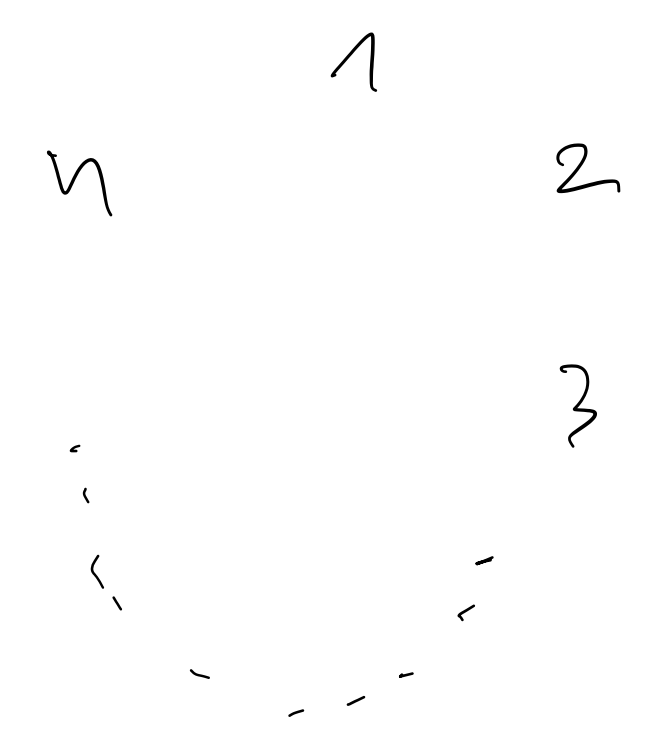
$2 \cdot 3$ 2 1 2 → 1 1 1

1 3 5 12 20 80

↓ normalize $2^2 \cdot 3$ $2^2 \cdot 5$ $2^4 \cdot 5$

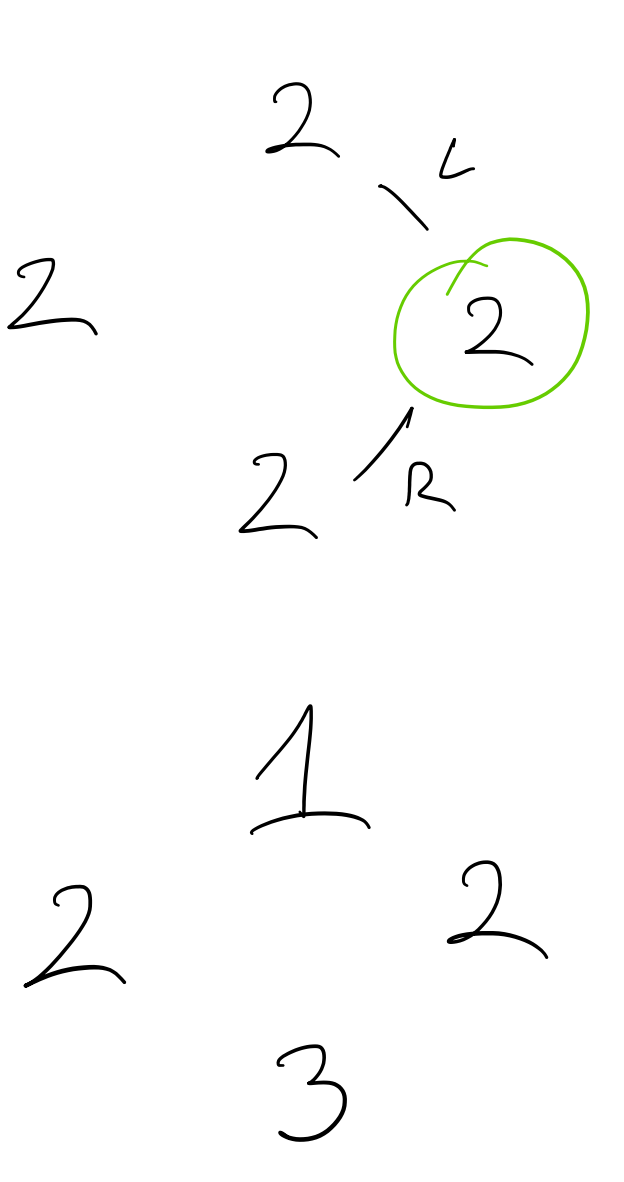
1 3 5 3 5 5

1 1 5 1 5 5



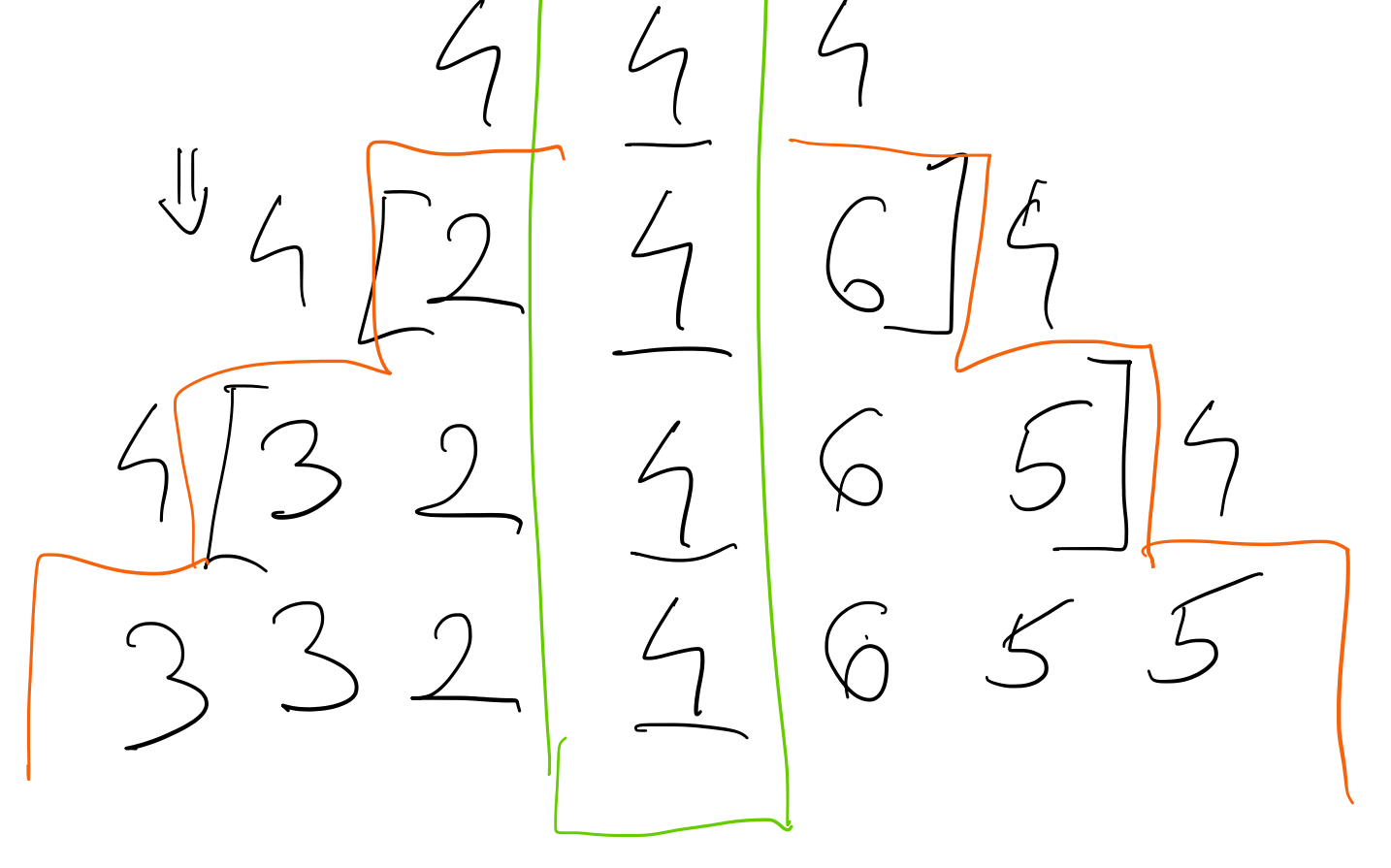
1, n, 2 - k cards, k even, 3

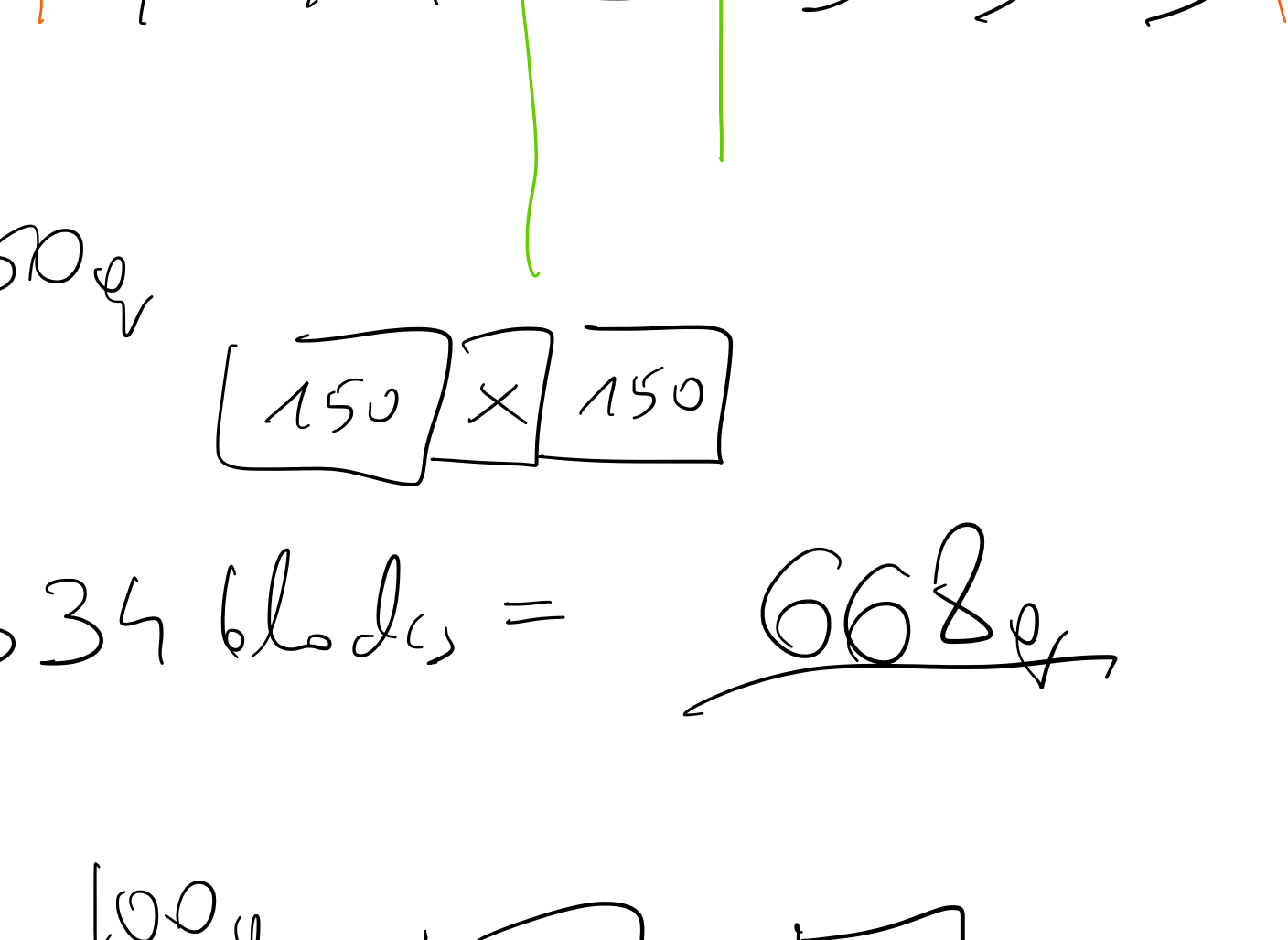
100000



× × × $\frac{x}{2}$ × $\frac{3x}{2}$ × ×

$k \le 10^9$





150q [150] × [150]

334 blocks = 668q

100q [100] × [100]

500 blocks

500q [500] × [500]

100 blocks = 200q to find block

max block size 1401

binary search: 11q

711 q. ?