Searching & Sorting
Problem Solving 2

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Problem 1

Hamburgers:

https://codeforces.com/edu/course/2/lesson/6/2/practice/contest/283932/problem/H

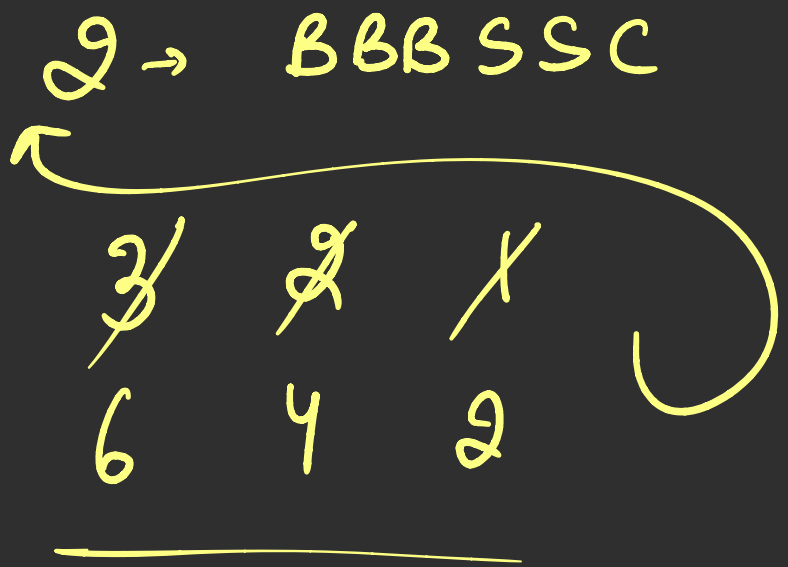
B B B S S C

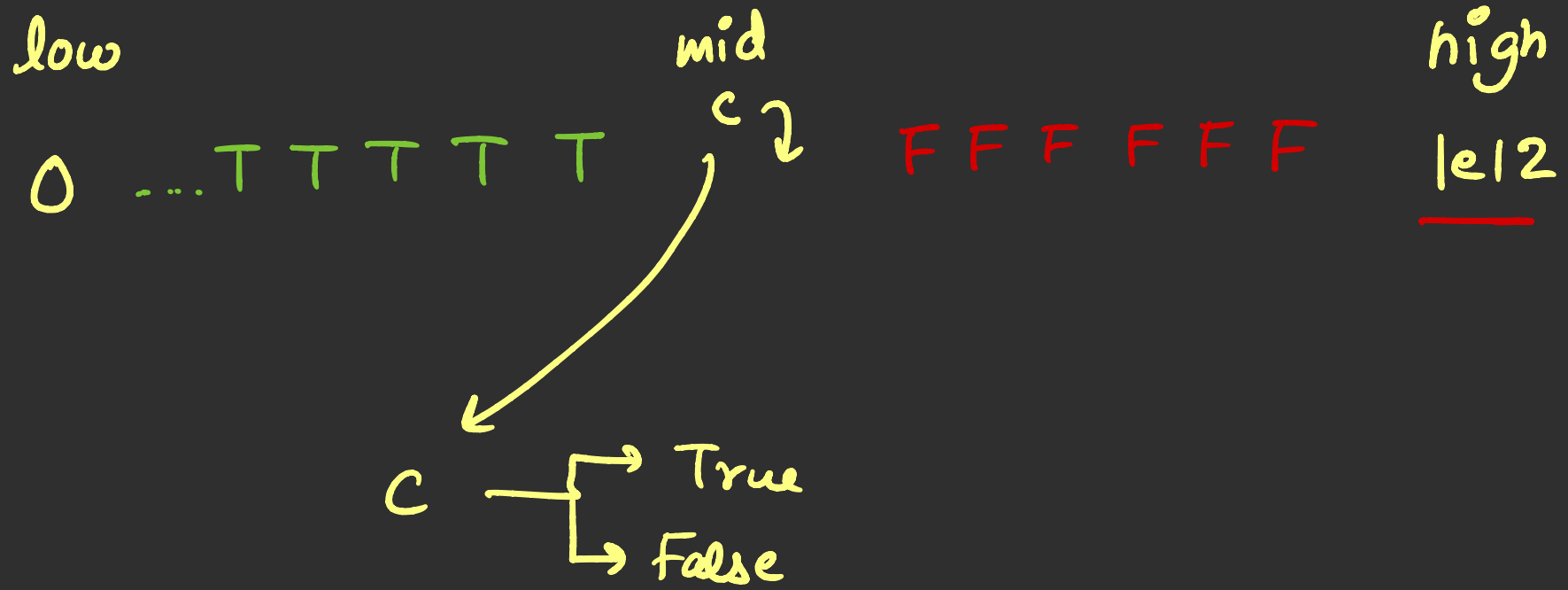
6 B 4 S 1 C → Kitchen

1 2 3

4

4 - 3 = 1





C → burger

n_B n_S n_C

h_B h_S h_C

P_B P_S P_C

Recipe = BBBSSC ← 1

$c_B = 3 \times c$ $c_S = 2 \times c$ $c_C = 1 \times c$

w_B w_S w_C

h_B h_S h_C

$$\left((w_B - h_B) \times p_B \right) = \begin{matrix} r_B \\ r_S \\ r_C \end{matrix}$$

Sum <= r

Problem 2

Student Councils:

https://codeforces.com/edu/course/2/lesson/6/2/practice/contest/283932/problem/G

low mid high

1 T T T T T T T F F F F F F...

largest true for which you can create 'X' councils.

X – council

1	2	3	4	5	...	n
a_1	a_2	a_3	a_4	. . . .		a_n
m_1	m_2	m_3	m_4	. . . .		m_n = sum

$\min(X, a[i])$

$\frac{sum}{k} \geq x$ → $sum \geq x \times k$

Problem 3

Packing Rectangles:

https://codeforces.com/edu/course/2/lesson/6/2/practice/contest/283932/problem/A

low

mid

high

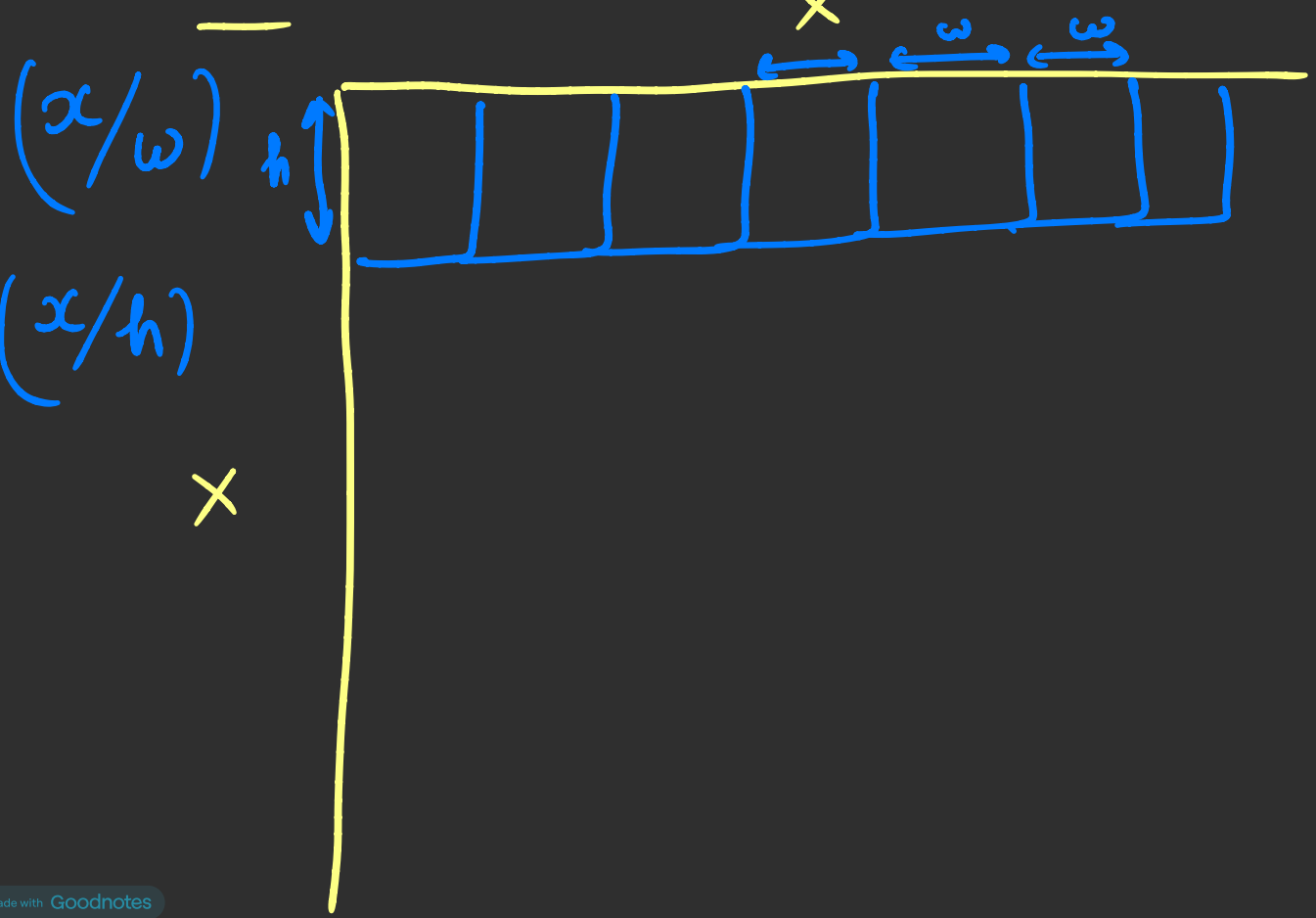
F F F F F F T T T T T T T ...

Side → True

↳ false

side - x

w , h

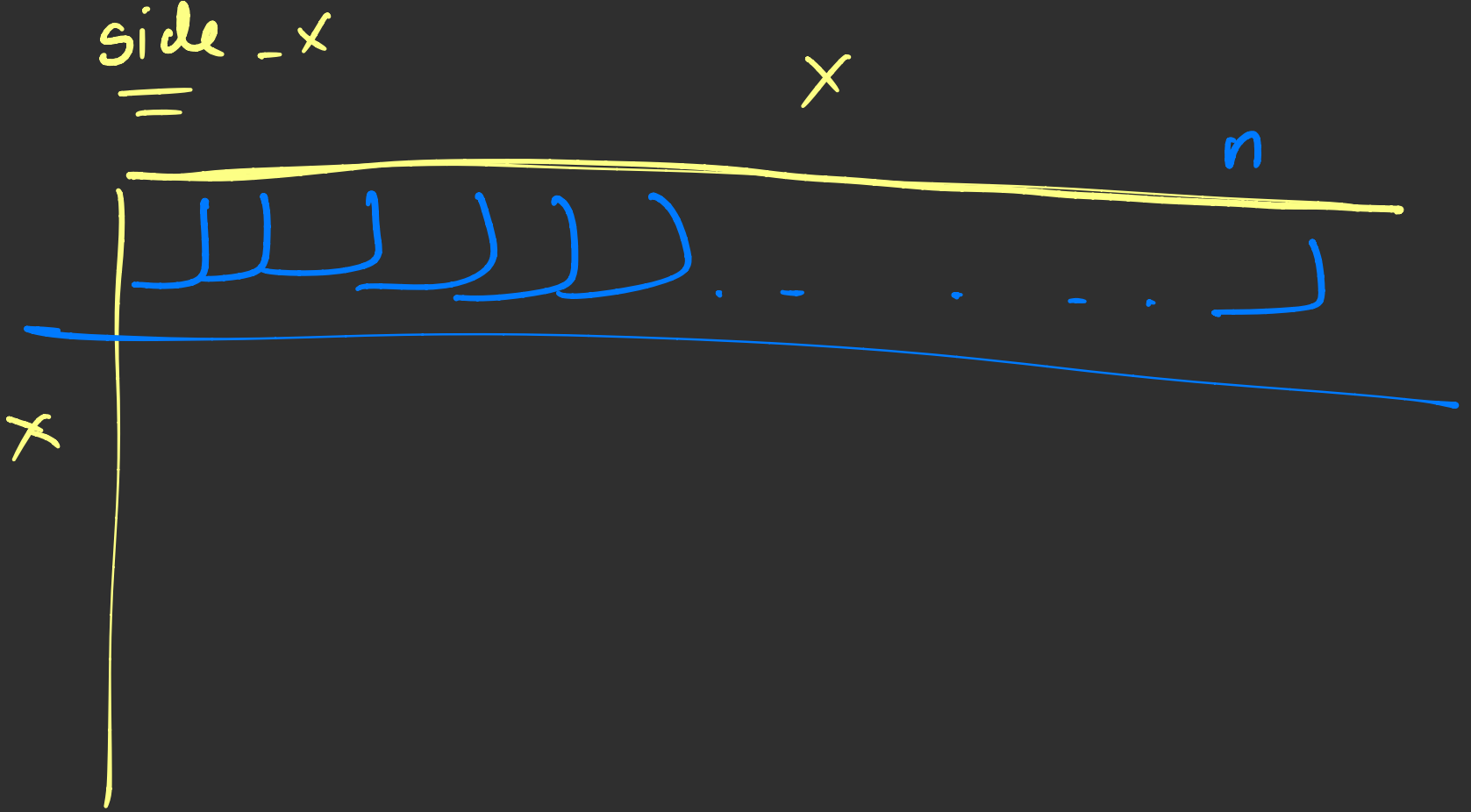


$$\left(\frac{x}{\omega}\right) \times \left(\frac{x}{h}\right) \geq n$$

$\left(\frac{x}{\omega}\right) \times \left(\frac{x}{h}\right)$: can fit

n: want to fit

side_x



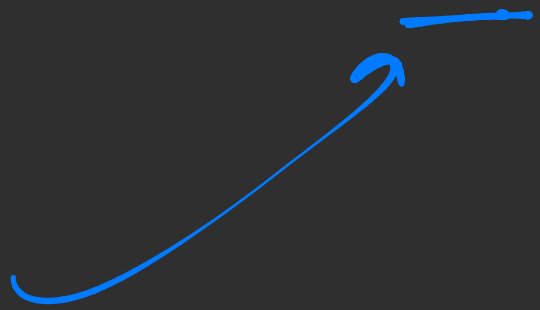
low high

0 1

↓

ans

high



high as the next best

power of 2