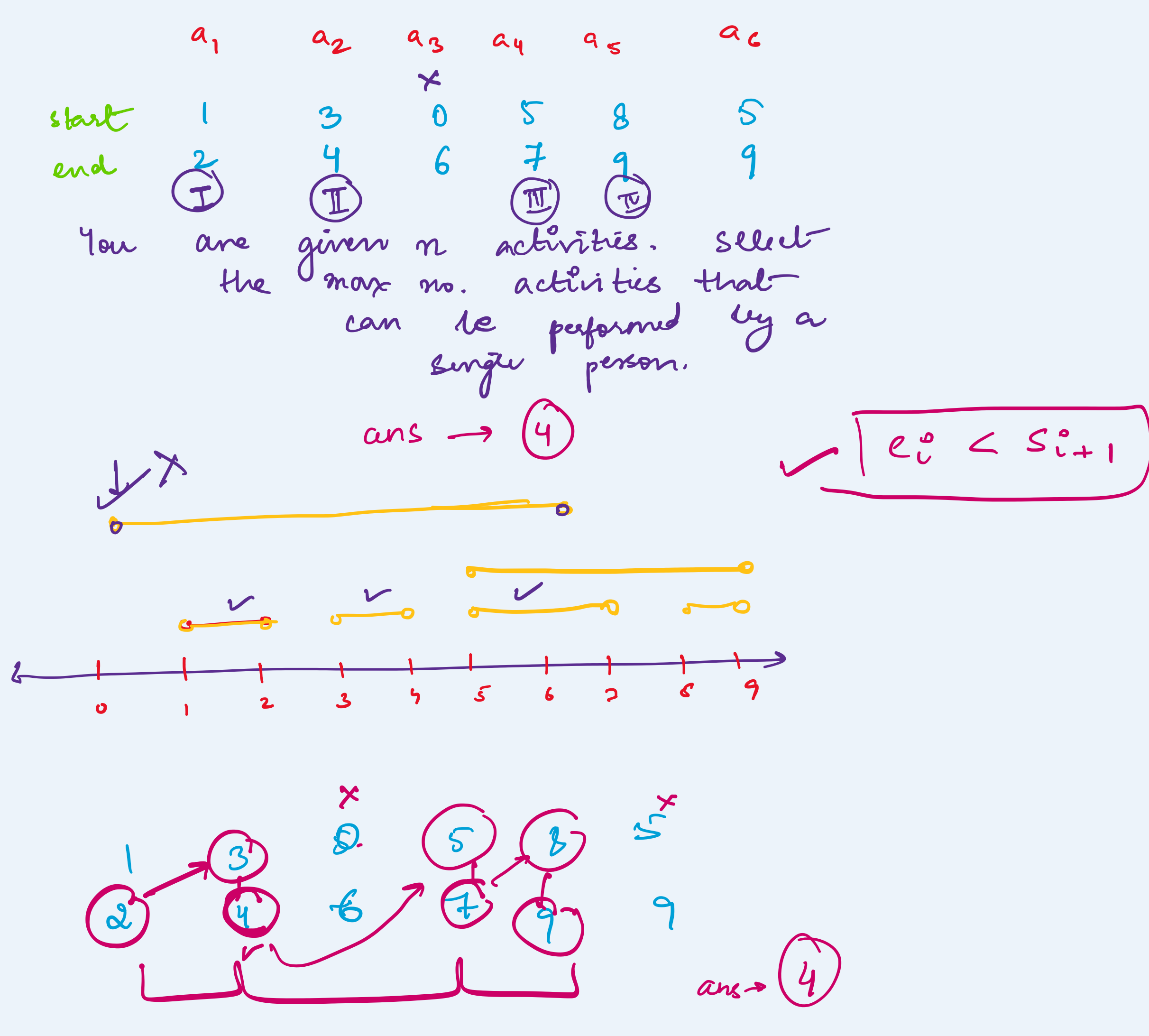
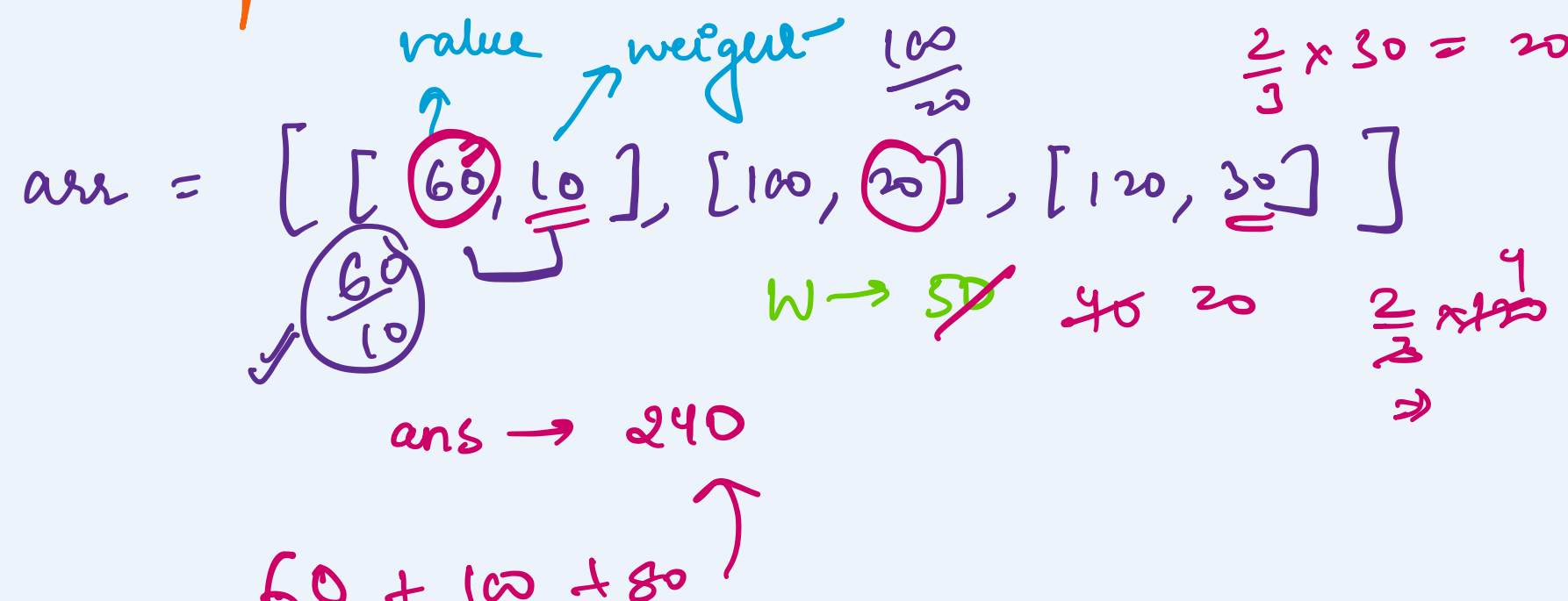


Activity Selection Problem



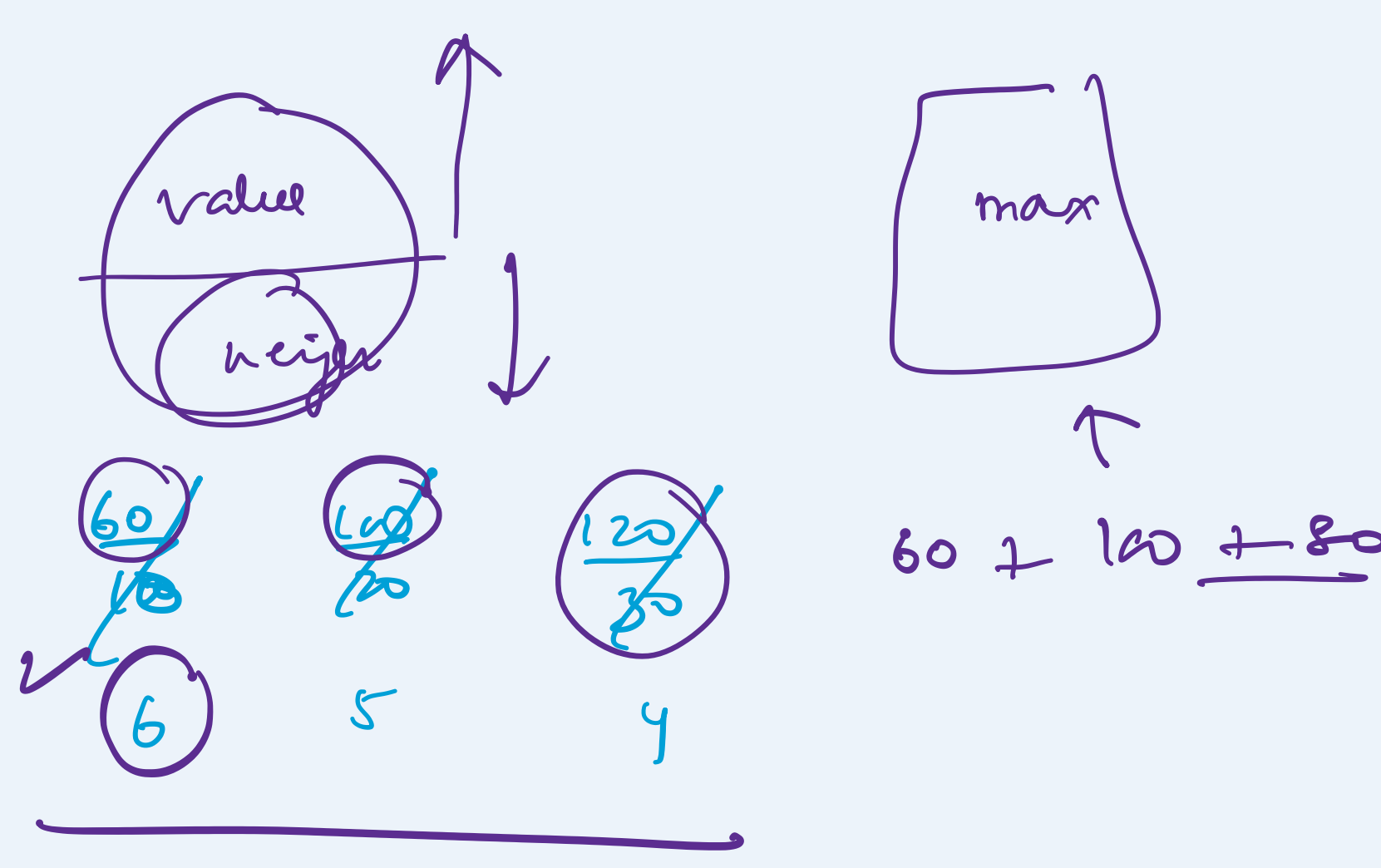
Given weights and values of n items, we need to put these items in a knapsack of capacity w to get the maximum total value in the knapsack.



Brute force approach: Try out all subsets with all different fractions.

Greedy approach:

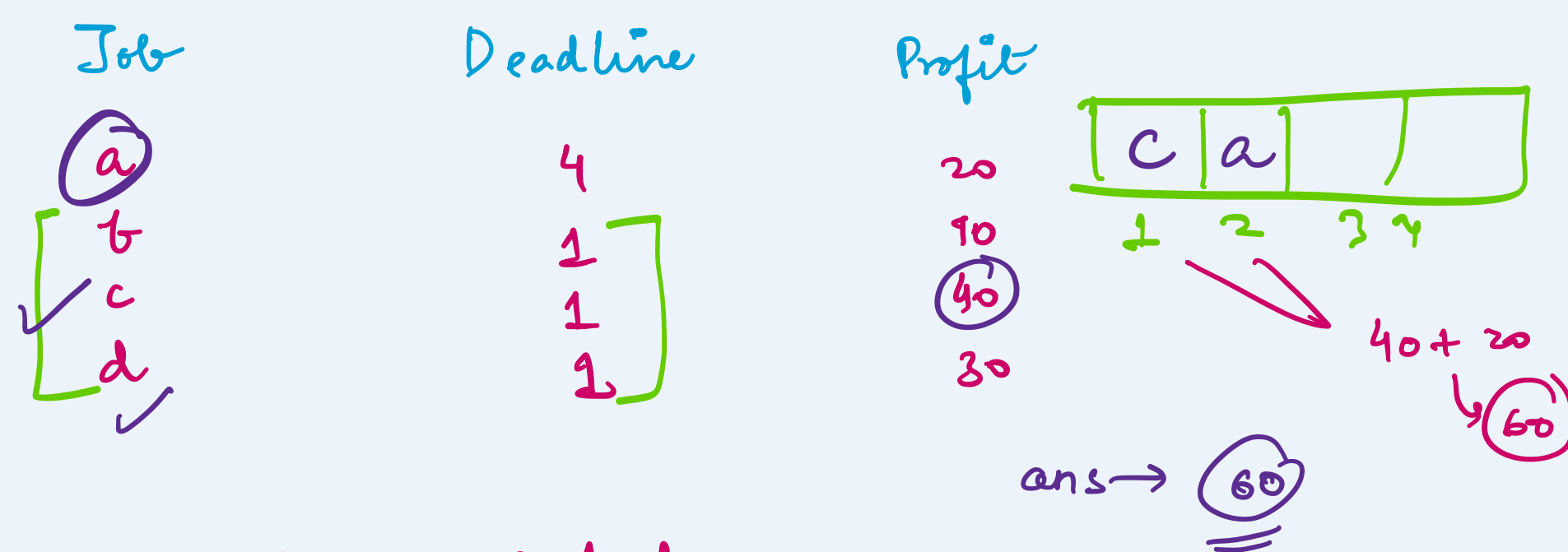
1. Calculate the ratio of value/weight
2. Sort the items based on density



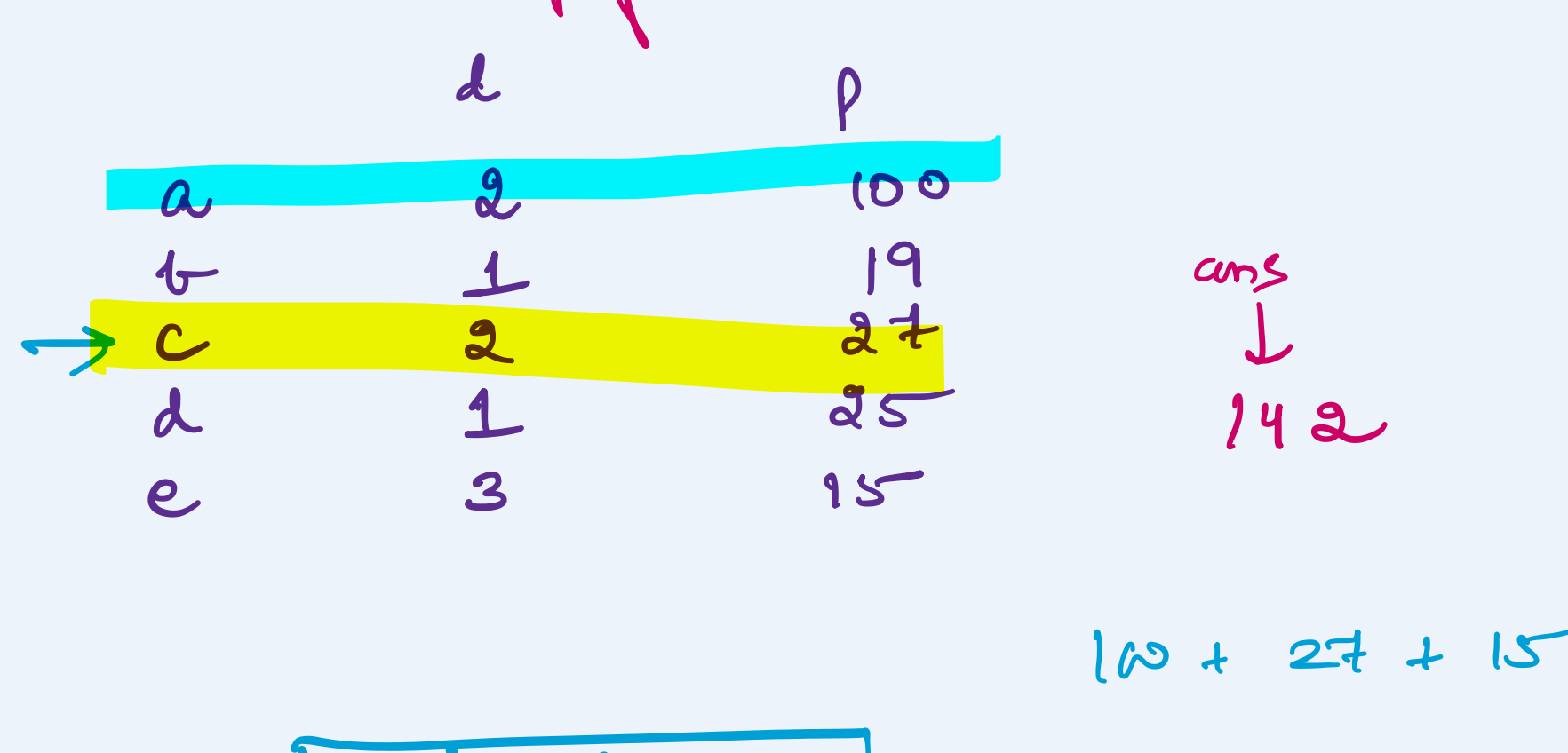
3. Take as much as possible to fill the bag with entire capacity.

Job Scheduling

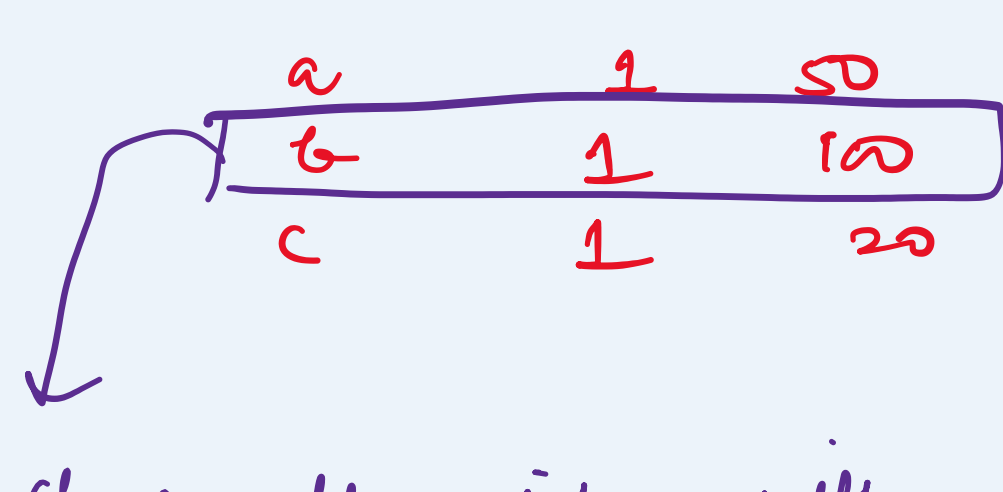
Each job has a deadline and profit associated.



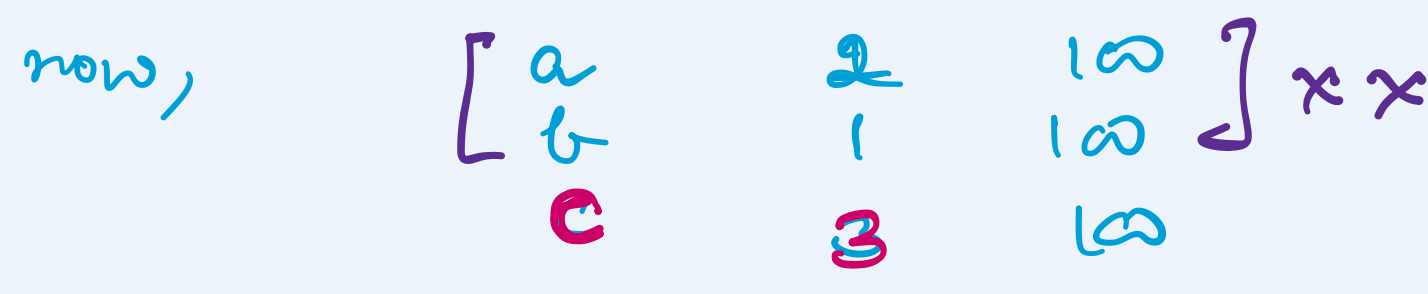
- \rightarrow 1 job \approx 1 day
- \rightarrow Job can be performed in any order
- \rightarrow Not necessary to perform all.
- \rightarrow Maximise profit.



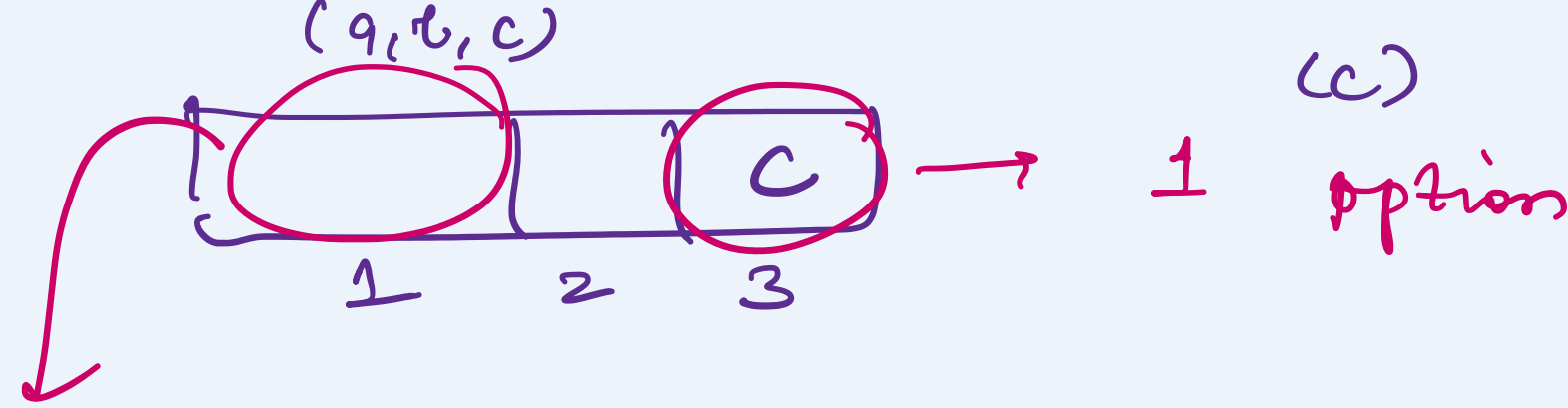
Let's say



Choose the job with max profit



What should be the order

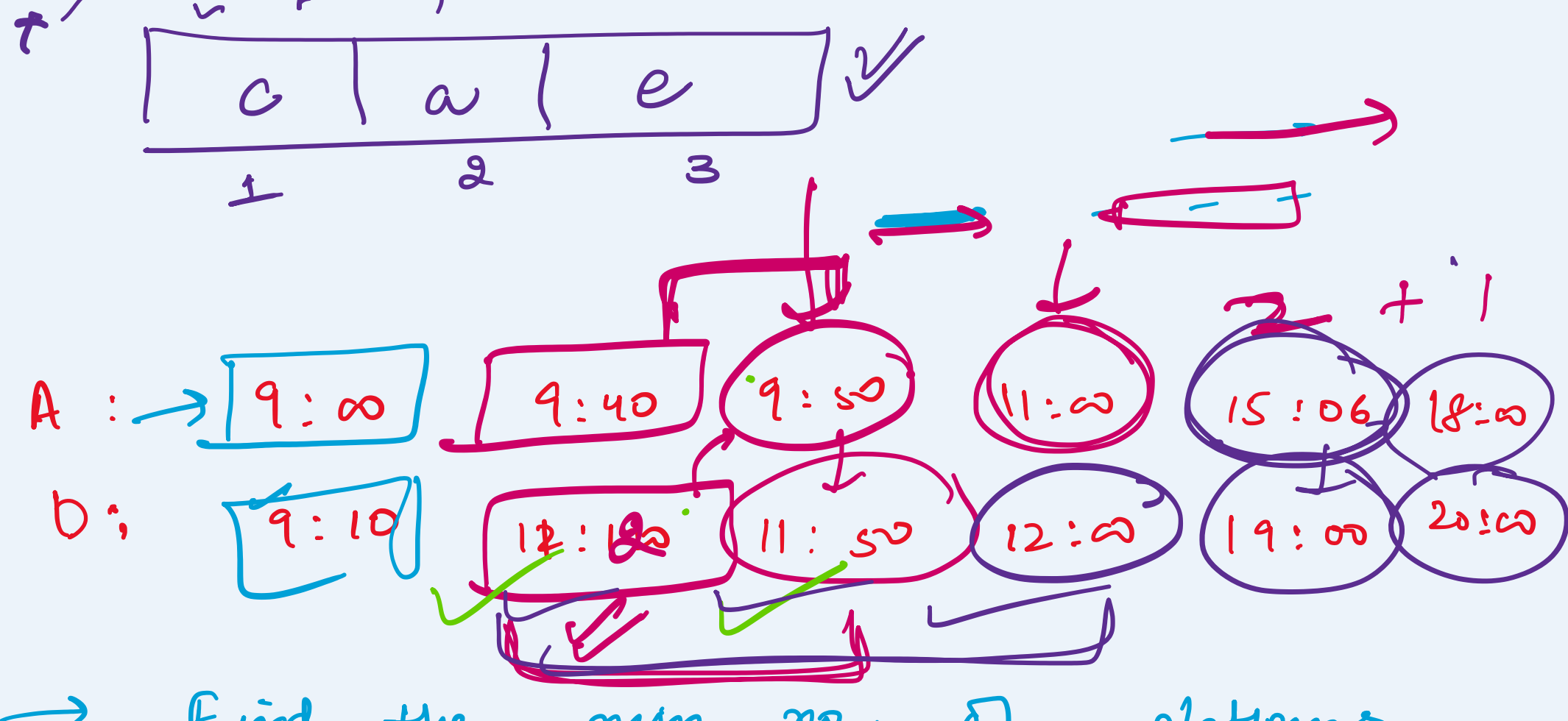
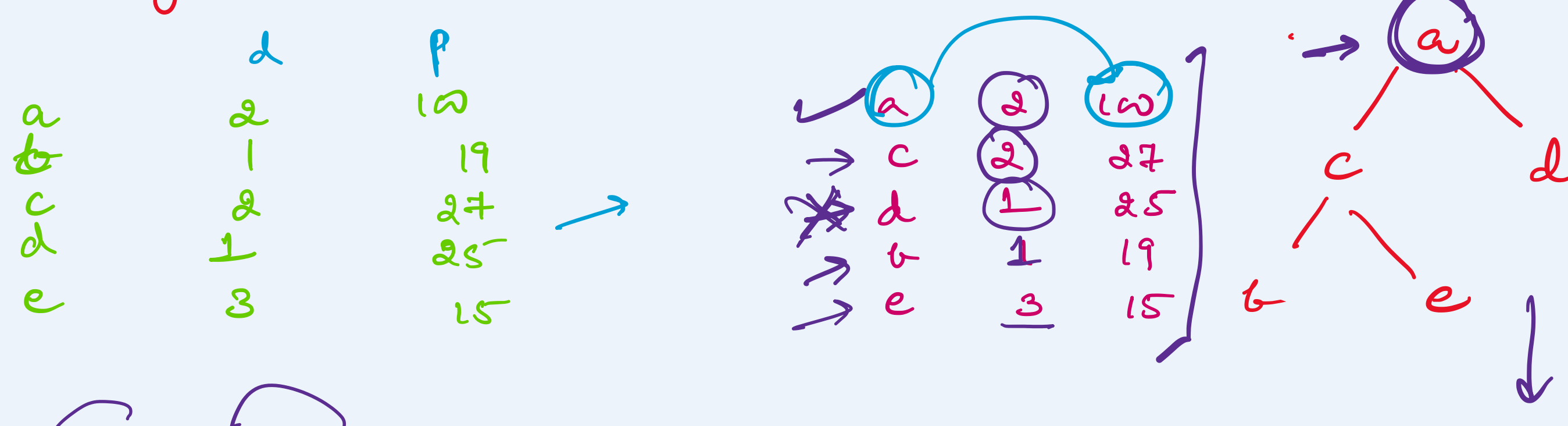


For day 1, I have all options.

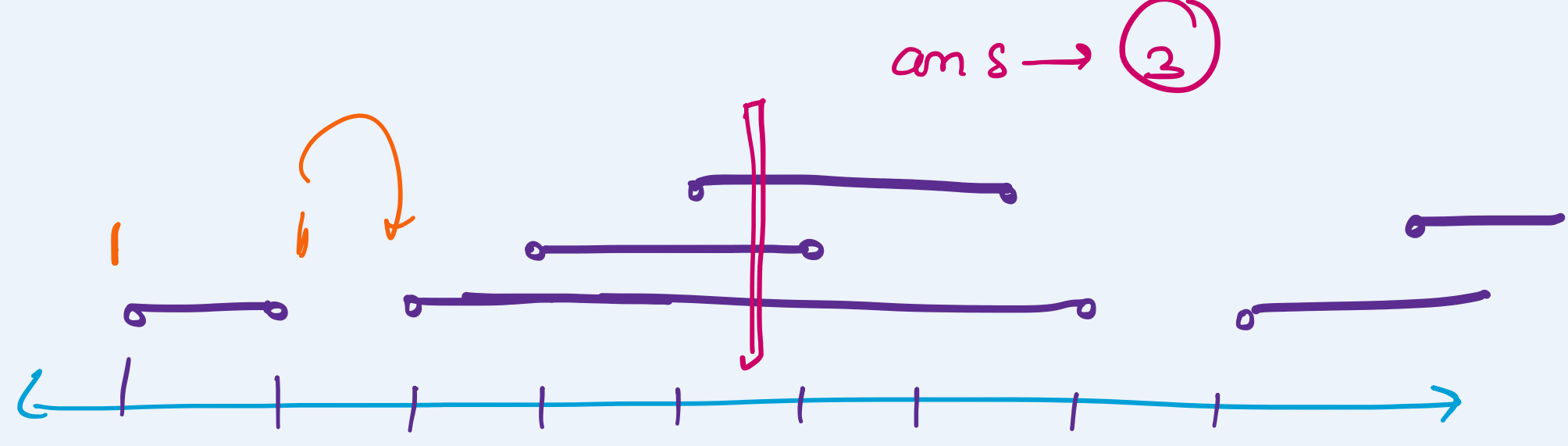
\rightarrow Always try to perform a job on its deadline day.

- ① Which job to choose first??
 \rightarrow Max profit
- ② When to prefer a job??
as close to the deadline as possible.

- ① Sort as per profit
- ② Try to find a slot.



\rightarrow Find the num no. of platforms required to accommodate all the trains.



\rightarrow Max no. of platforms we need at a time is the max no. of trains at a time on the platform.

- ① Sort the arrival time
- ② Sort the destination time