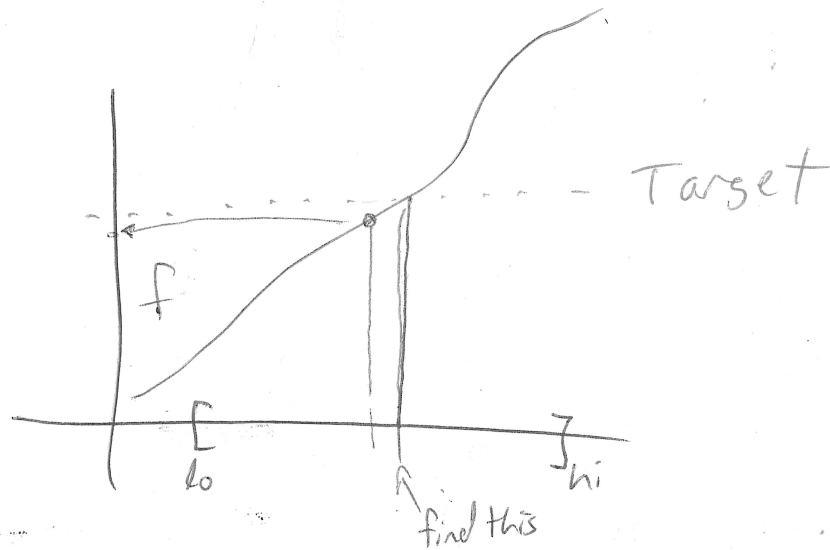


Binary Search

Method for finding an answer
in a "sorted" search space.



To find min x that satisfies the
Target the function should be
increasing.

Crystal Etching

Initial Frequency f_1

Target Frequency f_2 $f_2 > f_1$

3 parameters for each bath

$a, b, c \leftarrow$ positive

$$\frac{f_e - f_s}{f_e \cdot f_s} = \underbrace{at + b(1 - e^{-ct})}_{\substack{| \\ \text{Increases.}}}$$

Solving for t is hard.

Create a window to search over

l_0 too small

h_1 too large

} →

mid value

determine frequency

when bathing for

mid time.

adjust search range.

Careful Approach

2 to 8 planes each with
a landing window

pick a point in the window for
each

each plane to land at

maximize the time between
any pair of plane landings.

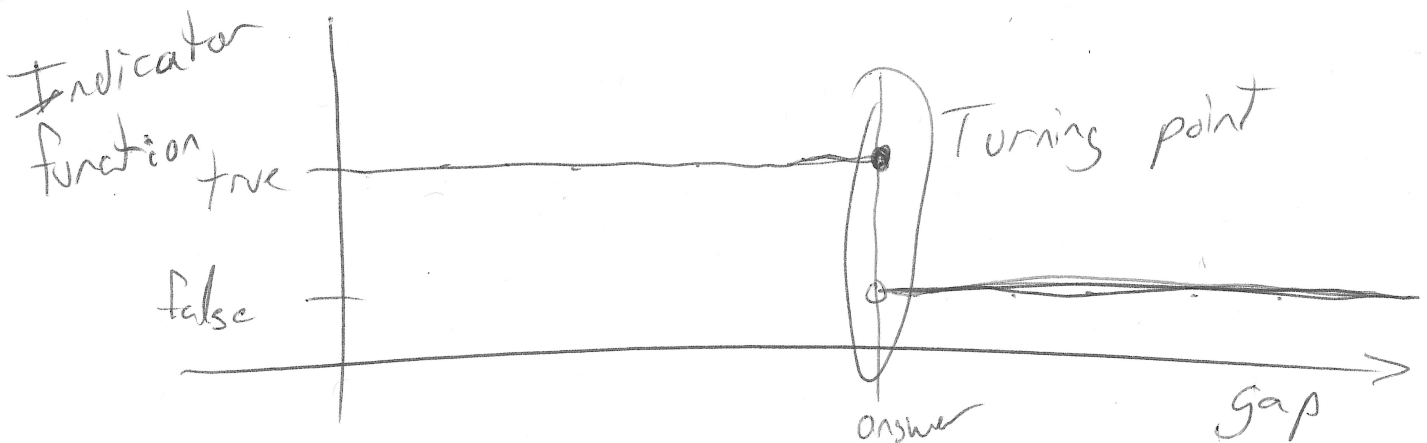
landings @ 1, 5, 10

Hint #1. Try all plane orders
worry about this later

Find best time for each order

Goal find best gap for a given order.

Q. Create a function that given a plane order and a gap determine if possible to land planes



Binary search for the turning point

greedy [Place landing points as early in the window possible for planes in their landing order

Air port Shuttle

Students arrive at an
airport

Need to have shuttles at
airport for students when
they arrive

Shuttles can wait and pick up
multiple students

Minimize the longest time any
shuttle waits

students

#shuttles

A_1

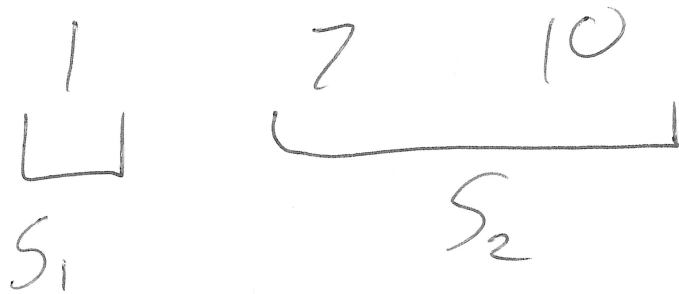
A_2

A_3

...

A_N

3 students 2 shuttles



wait time 3 hours.

Can all students be picked up
using some wait time

