

0	1	2	3	4	5
2	4	7	11	13	15

start = 0 end = 8

start = 5 end = 8

start = 5 end = mid

6	7	8
20	24	26

$$d = 15$$

$$\text{middle} = 7$$

$$15 \div 7 = 2$$

$$15 > 13$$

$$\text{middle} = 6$$

$$15 \div 6 = 2$$

$$15 < 20$$

$$\text{middle} - 1$$

$$\text{middle} = 5$$

$$15 \div 5 = 3$$

$$0 + (18 -$$

$$5 + (18 -$$

$$5 + (18 -$$

$$0) / 2)$$

$$-5) / 2)$$

$$-5) / 2)$$

0	1	2	3	4	5	6
2	4	7	11	13	15	20

start = 0 end = 8

start = 0 end = ^{middle}3

start = 2 end = 3

7 8

24	26
----	----

$$d = 11$$

$$d = 12$$

$$\text{middle} = 4$$

$$11 \stackrel{?}{=} 13$$

$$12 \neq 13$$

A:

$$11 < 13$$

$$12 < 13$$

$$\text{middle} = 1$$

$$0 + (3 - 0)$$

$$11 = 4$$

$$12 \neq 4$$

$$11 > 4$$

$$12 > 4$$

$$\text{middle} = 2$$

$$2 + (3 - 1)$$

$$11 = 7$$

✓

$$11 > 7$$



How MANY ROWS
BEFORE FINDING
11 AT INDEX 3?

2 B: 3 C: 4 D:

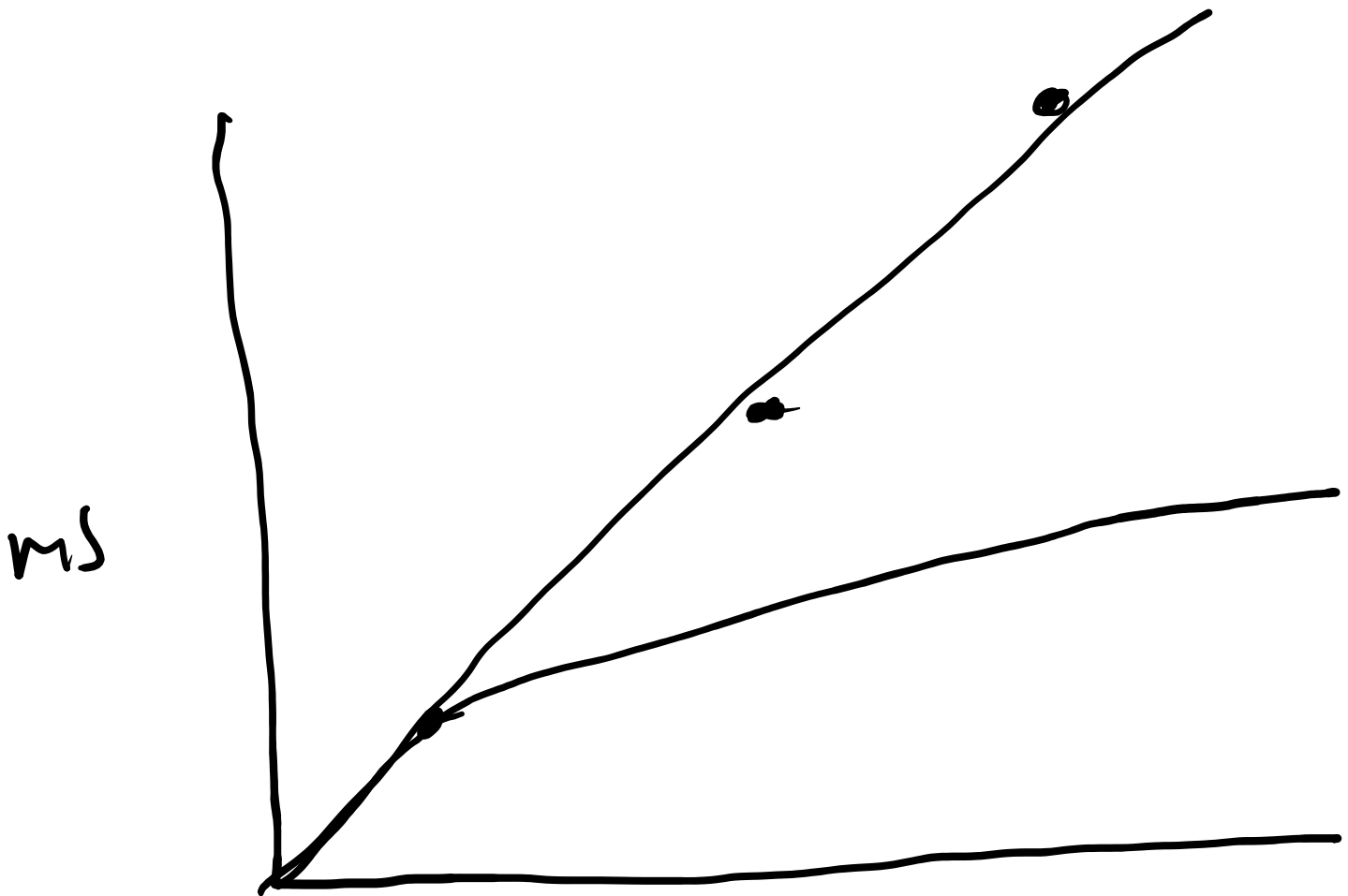
12)

12)

5

start = 3 end = 3

start = 3 end = 2
start > end



middle = 3

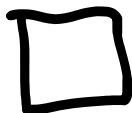
$$11 = 11$$

$$12 \neq 11$$

$$12 > 11$$

if so not found (-1)

Binary search



#rows

$\log_2(\#entries)$

entries

