**The ants problem - subtitles:**

**The dialogue starts at 40 seconds in so I added 27 seconds to the times as they were - John Argentino**

1

00:00:00,000 --> 00:00:40,000

[Music]

2

00:00:40,000 --> 00:00:43,000

okay so the puzzles I'm going to

3

00:00:43,000 --> 00:00:45,000

challenge you with are two basic

4

00:00:45,000 --> 00:00:47,000

versions of a more complicated puzzle

5

00:00:47,000 --> 00:00:50,000

known as the ants puzzle, which I'm

6

00:00:50,000 --> 00:00:51,000

probably going to discuss in a different

7

00:00:51,000 --> 00:00:54,000

video. Let me just finish writing down

8

00:00:54,000 --> 00:00:58,000

the title and, well, I can even draw a

9

00:00:58,000 --> 00:01:11,000

little ant right here. okay, let's get

10

00:01:11,000 --> 00:01:15,000

started! As I said I'm going to discuss

11

00:01:15,000 --> 00:01:18,000

two puzzles in the first puzzle there

12

00:01:18,000 --> 00:01:22,000

are two ants on a very high stool: a sort

13

00:01:22,000 --> 00:01:25,000

of Mountain, flat on the top with two

14

00:01:25,000 --> 00:01:28,000

steep cliffs to both the sides. The flat

15

00:01:28,000 --> 00:01:32,000

peak is one meter wide the two ants move

16

00:01:32,000 --> 00:01:36,000

with a velocity, let's call it V, which is

17

00:01:36,000 --> 00:01:38,000

the same for both of them and that is

18

00:01:38,000 --> 00:01:41,000

equal to one centimeter per second. You

19

00:01:41,000 --> 00:01:43,000

can decide the direction towards each

20

00:01:43,000 --> 00:01:46,000

ant moves if it is right or left and

21

00:01:46,000 --> 00:01:49,000

where exactly to place the two ants on the

22

00:01:49,000 --> 00:01:53,000

top of the mountain. Your purpose is to

23

00:01:53,000 --> 00:01:55,000

make the time the last ant takes before

24

00:01:55,000 --> 00:01:58,000

falling the longest possible. Ants cannot

25

00:01:58,000 --> 00:02:01,000

be still: they must move to the right or

25

00:02:01,000 --> 00:02:04,000

to the left but they must move and after

26

00:02:04,000 --> 00:02:07,000

meeting each other they turn around and

27

00:02:07,000 --> 00:02:10,000

keep moving with the same but opposite

28

00:02:10,000 --> 00:02:12,000

velocity

29

00:02:12,000 --> 00:02:16,000

[Music]

30

00:02:16,000 --> 00:02:20,000

so again what are the precise positions

31

00:02:20,000 --> 00:02:23,000

where I should place the two ants in

32

00:02:23,000 --> 00:02:25,000

order to get the longest time before the

33

00:02:25,000 --> 00:02:37,000

last ant falls? The second puzzle is

34

00:02:37,000 --> 00:02:39,000

basically the same but now we have three

35

00:02:39,000 --> 00:02:41,000

ants instead of two.

36

00:02:41,000 --> 00:02:44,000

As before the ants velocity is one

37

00:02:44,000 --> 00:02:46,000

centimeter per second, every ant turns

38

00:02:46,000 --> 00:02:48,000

around after meeting another ant and

39

00:02:48,000 --> 00:02:52,000

the peak is one meter wide. So, what are

40

00:02:52,000 --> 00:02:55,000

now the precise positions

41

00:02:55,000 --> 00:02:58,000

I should place the three ants in order

42

00:02:58,000 --> 00:03:00,000

to get the longest time before the last

43

00:03:00,000 --> 00:03:06,000

ant falls down? I hope you enjoyed this

44

00:03:06,000 --> 00:03:09,000

video do your best and good luck