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Programming Project Report

A. Using a simulation it takes approximately 114 assignments.

B. Using a simulation 4.7 numbers will occur less than 4 times in the puzzle.

C. My algorithm takes a brute force approach to finding the obstacle.

First the program creates a set of integers which represent the cube numbers that will be checked.

The program then tries to make 2 threads from the set of cubes provided.

If 2 threads cannot be made then the function returns false, the smallest obstacle is found and the set with the cube numbers of the obstacle is returned.

If 2 threads can be made then the function returns true for that set.

If a set returns true the program generates the next combination of cubes and tries to, again, make 2 threads with those cubes.

This approach is not practical as it takes well over 9 hours to find the obstacle for the π input.

π input

4 7 10 13 16 19

22 26 29 32 3 6

9 12 16 19 22 25

28 31 2 6 9 12

15 18 21 24 28 31

2 5 8 11 14 18

21 24 27 30 1 4

8 11 14 17 20 23

26 30 1 4 7 10

13 16 20 23 26 29

32 3 6 10 13 16

19 22 25 28 32 3

6 9 12 15 18 22

25 28 31 2 5 8

12 15 18 21 24 27

30 2 5 8 11 14

17 20 24 27 30 1

4 7 10 14 17 20

23 26 29 32 3 7

10 13 16 19 22 25

29 32 3 6 9 12

15 19 22 25 28 31

2 5 9 12 15 18

21 24 27 31 2 5

8 11 14 17 21 24

27 30 1 4 7 11

14 17 20 23 26 29

1 4 7 10 13 16

19 23 26 29 32 3

6 9 13 16 19 22

25 28 31 3 6 9

12 15 18 21 25 28

e input

3 6 9 11 14 17

20 22 25 28 30 1

4 7 9 12 15 17

20 23 26 28 31 2

4 7 10 13 15 18

21 23 26 29 32 2

5 8 11 13 16 19

21 24 27 30 32 3

6 8 11 14 17 19

22 25 27 30 1 4

6 9 12 14 17 20

23 25 28 31 1 4

7 10 12 15 18 21

23 26 29 31 2 5

8 10 13 16 18 21

24 27 29 32 3 5

8 11 14 16 19 22

24 27 30 1 3 6

9 12 14 17 20 22

25 28 31 1 4 7

9 12 15 18 20 23

26 28 31 2 5 7

10 13 15 18 21 24

26 29 32 2 5 8

11 13 16 19 22 24

27 30 32 3 6 9

11 14 17 19 22 25

28 30 1 4 6 9

12 15 17 20 23 25

28 31 2 4 7 10

13 15 18 21 23 26

29 32 2 5 8 10