Edu-101

Monday, 28 December 2020 11:41

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1 2 3 $\quad ax := \left\lceil \frac{ax}{ay} \right\rceil$

good!

1 1 1 2 1 1 1

max n+5 steps

1 2 3

1 2 2

1 2 1

1 2 3 4 5

1 1 2

1 2 3 4

1 ½ n

1 1

1 2 ... ½ n-1 n

1 ...

1 2 3 4

1

1 2

1 ½

1 ½

$\boxed{2^5 = 32}$

n=4

1 2 ½ n

32 (5 steps to 1)

1 2 4 8 16 32 64 .....

all else goes to 1

2 2 2 2

1 12 12^2 12^5

=

+1 +2

1 2 4 8 16 .....

2 2 2

7 moves 4 2 3

16^2 $16^2 \to 16 \to 1$

16^4 $\to$ $16^2 \to 16 \to 1$

not enough moves:/

$16^4 = 65.536$

1 2 4 64 64^2 64^4

+1 +1 -1 16 64 64^2

4 1 64

1 1

-2 -1 -2 -4

64^4 ✓

$64 \to 32 \to 16 \to 8 \to 4 \to 2 \to 1$

6 steps ✓

Keep: 1 2 4 64 64^2 max

1 2 3

1 2 ... max

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0 1 1 0

0 1

1 1

1 0 1c* 1 2 3

0/1, 0/1, 0/1 1 2

0 0

1 2 3 ☒

1 1

Build from back

1,000000

$O(n)$ required?

$O(n \log n)$?

1 1

pick collecting all positions

1 0 0 1

0 1 0 0 0 1 1 1 0

Each digit = partition

$S_i^0 \quad S_i^1$

$\bigcup_{S_i}^{*} = \{1 \dots n\}$

A B C D E

A B C

B C D

C D E