

1. Fly me to the Alpha Centauri

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2 4 6 8 10 12 14 16

3 6 9 12 15 18 21 24

4 8 12 16 20 24 28 32

5 10 15 20 25 30 35 40

6 12 18 24 30 36 42 48

7 14 21 28 35 42 49 56

8 16 24 32 40 48 56 64

9 18 27 36 45 54 63 72

10 20 30 40 50 60 70 80

11 22 33 44 55 66 77 88

12 24 36 48 60 72 84 96

13 26 39 52 65 78 91 104

14 28 42 56 70 84 98 112

15 30 45 60 75 90 105 120

16 32 48 64 80 96 112 128

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2. 소수구하기

* 제곱근까지만 구하는 이유

$$\begin{aligned} \text{ex) } 12 &= 1 \times 12 \\ &= 2 \times 6 \\ &= 3 \times 4 \\ &= 2\sqrt{3} \times 2\sqrt{3} \end{aligned}$$

제곱근 이용

→ 제곱근 이전의 숫자에서 약수가 있는지만 확인해도 OK

* 이전까지 사용한 방법

$$\text{num_list} = [2, \dots, n]$$

for num in num_list:

if num != 0 :

↳ 쓰모는 리스트

number.append(num)

$$\text{num_list} = [1, 2, 3, 4, 5, 6, 7, \dots]$$

$$\text{number} = [2, 3, 5, \dots]$$

for i, v in enumerate(num_list):

if v % number[-1] == 0 :

$$\text{num_list}[i] = 0$$

주의) Point = 시간초과 벗어나기 !!

def is_prime(num):

if num == 1 : return False

else :

↳ 제곱근 까지만 확인

for i in range(2, int(math.sqrt(num))+1) :

if num % i == 0 : return False

return True

for i in range(M, N+1)

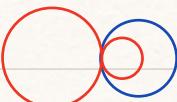
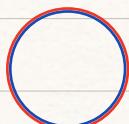
if is_prime(i) :

print(i)

3. E1제

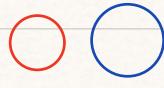
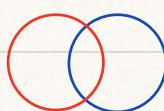
$$\text{distance} = \text{math.sqrt}((x_1 - x_2)^2 + (y_1 - y_2)^2)$$

① 구현, 승환이의 위치, 반지름이 동일할 때 : $\text{distance} == 0$ and $r_1 = r_2$



② 내접 / 외접하는 경우 : $\text{abs}(r_1 - r_2) == \text{distance}$ or $r_1 + r_2 = \text{distance}$

③ 원이 교차되는 경우 : $\text{abs}(r_1 - r_2) < \text{distance} < r_1 + r_2$



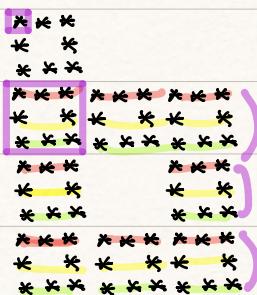
④ 만나지 않는 경우

4. 별찍기 - 10

$n=1$ *

$n=3$

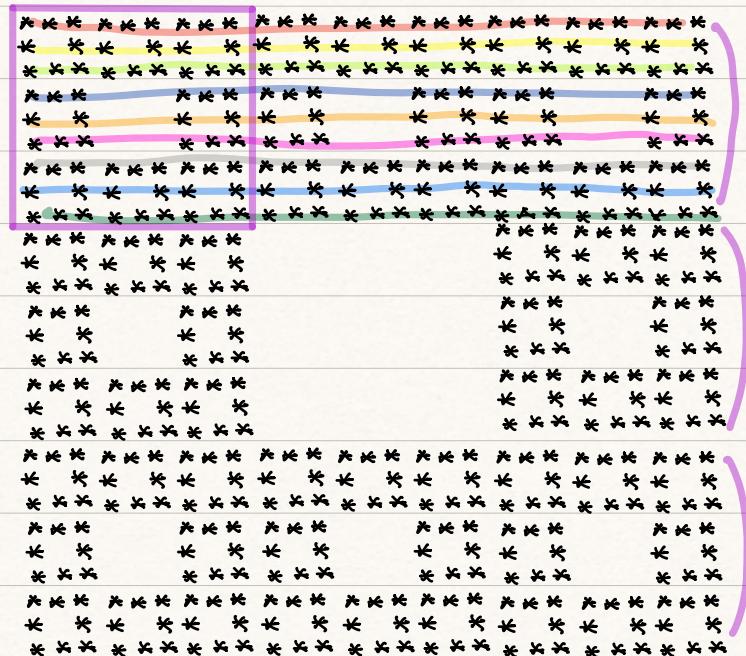
$n=9$



$\left[\begin{array}{c} * * * \\ * * * \\ * * * \end{array} \right]$

$\left[\begin{array}{c} * * * * * * * * * \\ * * * * * * * * * \\ * * * * * * * * * \\ * * * * * * * * * \\ * * * * * * * * * \\ * * * * * * * * * \\ * * * * * * * * * \\ * * * * * * * * * \end{array} \right]$

$n=27$



문제)

```
num = int(input())
```

```
def star(n):
```

$n=3$

```
if n==1 : return ['*']
```

① stars = star($n//3$)

```
stars = star( $n//3$ )
```

$= ['*']$

```
L = []
```

② L = ['***', ' * * ', ' *** ']

```
for s in stars : L.append(s*3)
```

$n=9$

```
for s in stars : L.append(s + ' '*( $n//3$ )+s)
```

① stars = stars($n//3$)

$= stars(3) = ['***', ' * * ', ' *** ']$

for s in stars : L.append(s*3)

$$\textcircled{2} \ L = [\ , \ , \ , \ , \ , \ldots]$$

return L.

5. 하노이 탑 이동 순서

~1개를 보조기능으로 읊어야 함 (이때 목표기둥이 보이지 않음. 보조기둥이 목표기둥이 됨)

⇒ an श

$$a_{n+1} = 2a_n + 1$$

१८

$$\text{양변} + 1 \\ \text{ant} + 1 = 2(\text{ant})$$

8-1 개를, 목표기들으로 채우기 (현재 보조기들 위에 쓰기)

୨୯

$$\alpha_{t+1} = 2$$
$$\alpha_{2t+1} = 2(\alpha_{t+1})$$

$$\therefore \text{보조기둥} = \text{축설기둥} / \text{축설기둥} = \text{보조기둥}$$

$$ABH = 2(ABH)$$

n=2 -

$\theta = 3$ =

- 2 -

12

1

13

13

4

4

1

$n=4$

— = — = 82 — = 23

— - 12 — = 12 — - - 12

= - - 13 $\textcircled{=}$ 13 - = 13

— = 23 — - 23 \equiv 23

— - - 12 — - - 21

— - - 31 — - - 31

$n=5$

— = — - = 12

\equiv - 13 — - - = 82

\equiv - - 12 — - - - 81

\equiv = 32 \equiv — - 21

\equiv = - 13 \equiv = 82

\equiv - - - 21 — = - 13

\equiv = 23 — \equiv - 12

\equiv \equiv 13 — \equiv 82

2-1

| a1 (3

3 02 12 13 23

7 03 13 12 32 13 21 23 13

15 04 12 13 23 12 31 32 12 13 28 21 31 23 12 13 23

05 12 12 32 13 21 28 13 12 32 31 21 32 13 12 21

hanoi(2, 1, 3, 2)

$\rightarrow \text{hanoi}(1, 1, 2, 3) \rightarrow \text{① print}(1, 2)$

② print(1,3)

12
13
23

hanoi(1, 2, 3) → @phint(2, 3)

hanoi (3, 1, 2)

→ hanoi (2, 1, 3) → hanoi (1, 3, 2) → ① print (1, 2)

② print (1, 2)

hanoi (1, 3, 2, 1) → ③ print (3, 2)

④ print (1, 3)

hanoi (2, 3, 1) → hanoi (1, 2, 3) → ⑤ print (2, 1)

⑥ print (2, 3)

hanoi (1, 1, 3, 2) → ⑦ print (1, 2)