```
i = n
while i > 2 :
    i = i ^ 1/25
    print (i)
```

Here (2) is the stopping criteria.

$$n^{\frac{1}{25^k}} = 2$$

$$\frac{1}{25^k} \log_2 n = 1$$

$$\log_2 n = 25^k$$

$$\log_{25}(\log_2 n) = \log_{25}(25)^k$$

$$k = \log_{25}(\log_2 n)$$

$$= O(\log(\log n))$$

$i = 29$

while $i < n$

$i = i^{23}$

print (i)

$29^{23^K} = n_K$

$\log_{29} 29^{23^K} = \log_{29} n$

$23^K = \log_{29} n$

$\boxed{K = \log_{23}(\log_{29} n)}$

$\Rightarrow (29)^{23^K} = n$

~~$23^K \log_{29} 29 = n$~~

$23^K \log_n 29 = 1$

$\log_n 29 = \frac{1}{23^K}$

$\frac{\log_n 29}{\log_{23} 1} = \frac{1}{K}$

$K = \frac{\log_{23} 1}{\log_n 29}$

$\simeq (\log_{23}(\log_{29} n))$

(6)

```
i = 1
while i < n :
    i = 2 * i
```

$\Rightarrow \log_2 n = (\log n)$

ex = n = 10

1, 2, 4, 8, 16 ×

3 times.

ex = 64

2, 4, 8, 16, 32, 64

6 times.

$\log_2 64 = \log_2 2^6$

$= 6$

(7)

```
i = 1
while i < n :
    i = 2 * i
    i = 3 * i
```

$\Rightarrow i = 6 * i \Rightarrow \log_6 n$