

Runtime Practice

How many steps are needed for each of the following code blocks? Classify each one as either:

$O(1)$, $O(\log n)$, $O(n)$, $O(n \log n)$, or $O(n^2)$.

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1.

```
n = int(input("n: "))
for i in range(n):
    print(i)
```
2.

```
n = int(input("n: "))
for i in range(100):
    print(i*n)
```
3.

```
n = int(input("n: "))
for i in range(n):
    print(i)
for j in range(n):
    print(j)
```
4.

```
n = int(input("n: "))
for i in range(n):
    for j in range(n):
        print(i, j)
```
5.

```
n = int(input("n: "))
for i in range(n):
    for j in range(i,n):
        print(i, j)
```
6.

```
n = int(input("n: "))
for i in range(n):
    for j in range(10):
        print(i, j)
```
7.

```
n = int(input("n: "))
while n > 1:
    print(n)
    n = n/2
```
8.

```
lst = [1,2,5,7,13,21,24,25,26,33,34,38,50,57,58,63]
n = len(lst)
mid = n//2
print lst[mid]
```
9.

```
n = int(input("n: "))
for i in range(n):
    k = n
    while k > 1:
        print(i, k)
        k = k/2
```