

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 $O(n^2)$.

Credit: Jeff Knerr

```
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
```