

The order of growth of option (C) is $n^{2.5}$ which is higher than n^2 .

Lets look at it with a different approach :

```
f(n) = O(n^2) if
f(n) <= C * n^2 for n > n0.
```

Lets look at every option one by one.

1. Option 1 :

```
(15^10) * n + 12099
Lets say C = 16^10
15^10 * n + 12099 < 16^10 * n^2 for n > 1.
So, it is O(n^2).
```

1. Option 2 : $n^{1.98}$

```
C = 1.
n^1.98 < n^2 for n > 1.
So, its O(n^2)
```

1. Option 3 : $n^3 / (\sqrt{n})$ or $n^{2.5}$

```
There is no possible combination of C and n0 possible
```

1. Option 4 : $2^{20} * n$

```
C = 2^20, n0 = 1
2^20 * n <= 2^20 * n^2 for n > 1
```