Quiz 3

1. When solving the recurrence $T(n) = 3T(\frac{n}{4}) + n^2$ using recursion tree, what is the root of the tree?

   Answer: n^2

2. When solving the recurrence $T(n) = 3T(\frac{n}{4}) + n^2$ using recursion tree, how many children each non-leaf node have?

   Answer: 3

3. Given $T(n) = 3T(\frac{n}{4}) + n^2$, what is $T(\frac{n}{4})$?

   Answer: $T(\frac{n}{4}) = 3T(\frac{n}{16}) + \frac{n^2}{16}$

4. When solving the recurrence $T(n) = 4T(\frac{n}{2}) + 1$ using recursion tree, what is the root of the tree?

   Answer: 1

5. When solving the recurrence $T(n) = 4T(\frac{n}{2}) + 1$ using recursion tree, how many children does each non-leaf node have?

   Answer: 4

6. Given $T(n) = 4T(\frac{n}{2}) + 1$, what is $T(\frac{n}{2})$?

   Answer: $T(\frac{n}{2}) = 4T(\frac{n}{4}) + 1$