Question 3.

Algorithms Assignment 1

Faaiq Bilal
23100104

2^{n+1} is $O(2^n)$ if $2^{n+1} \leq c \cdot 2^n$ for some some $n \geq n_0$
$2 \cdot 2^n \leq c \cdot 2^n$
$2 \leq c$
Hence, we can see that for all $c \geq 2$, 2^{n+1} is $\leq c \cdot 2^n$
This means that 2^{n+1} is $O(2^n)$