Print this Assignment and use the blank space to provide your answers. Simplify expressions (exponents and log-s)
Read the slides on logarithms in lecture 02_bigO. Demonstrate the three cases of the Master Theorem by solving the following three recurrence relations using the Master Theorem as well as repeated substitution.
1. $f_1 = 1 \quad f_n = 2f_{n/2} + 1$

Master Theorem: $a = \quad b = \quad d = \quad f(n) = O(\quad )$

Now solve using repeated substitution:
2. \( f_1 = 1 \quad f_n = 2f_{n/2} + n^2 \)

Master Theorem: \( a = \quad b = \quad d = \quad f(n) = O(\quad ) \)

Now solve using repeated substitution:
3. $f_1 = 1 \quad f_n = 3^{f_{n/3}} + n$

Master Theorem: $a = \quad b = \quad d = \quad f(n) = O( \quad )$

Now solve using repeated substitution: