

Training Problems #2

1.

Is $2^{n+1} = O(2^n)$? Is $2^{2n} = O(2^n)$?

2. Find the upper bound for $f(n) = n^2 + 1$. Provide a c and n_0 .

3. Prove that $f(n) = 100n + 5 \neq \Omega(n^2)$

4. Prove that $n \neq \theta(\log n)$

5. What is the worst case rate of growth for the following code:

```
for (i = 1; i <= n; i=2*i)
```

```
    System.out.println(i);
```