

CS 14 - Summer 2003. Theory Homework 1

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Instructions: Order the following functions in terms of their relative rates of growth with respect to n . Put a 1 by the slowest-growing function (the function closest to 0), a 2 by the next slowest, \dots . If two functions are the same, give them *the same* number. If you have questions about any of these functions, consult a math book or send email to cs14@lists.cs.ucr.edu.

1. $n \log_3 n$
2. $5n^2 + 10n + 10000$
3. $n!$
4. $\frac{2^{10n} \ln n}{7}$
5. 2^n
6. $7n$
7. 100
8. $n^3 \log_2 n$
9. $5\sqrt{n}$
10. 3^n
11. n^3
12. $n + \sqrt{(n)}$
13. $\frac{2^{2n}}{2}$
14. $\log_2 2n$
15. $n + \log n$