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HW2: The Master Theorem

1. Log(base 4)2 = .5
2. .5 < 1: thus linear (n)
3. .5 = .5: thus order sqrt(n)logn. Linearithmic?
4. .5 < 1: thus linear (n)
5. .5 < 2: thus quadratic (n^2)
6. Log(base 4)2 = .5 < 4: thus order (n^4)
7. Log(base 10)1 = 0 < 1: Thus linear (n)
8. Log(base 4)16 = 2 = 2: Thus order (n^2)Logn
9. Log(base 3)7 = 1.77 < 2: Thus quadratic (n^2)
10. Log(base 2)7 = 2.81 > 2: Thus order n^(Log(base 2)7)
11. Merge Sort: a = 2, b = 2, c = 1

Log(base 2)2 = 1 = c: Thus order (nLogn)

1. Binary Search: a = 1 b = 2 c = 0

Log(base 2)1 = 0 = c: Thus order (Logn)

1. T(n) = t(n/2) + n^3

Log(base 2)1 = 0 < n^3: Thus order n^3