Module 1 Reinforcement Exercises

1.6.7) Ordered from fastest to slowest

1. 1 / n
2. 2^100
3. Log log n
4. n^.01
5. Log ^2 n
6. sqrt(logn)
7. 2^logn
8. sqrt(n)
9. 4^logn
10. 3n^0.5
11. 6NlogN
12. nlogbase4n
13. 2nlog^2n
14. 5n
15. 4x^(3/2)
16. (n^2)*logn
17. n^3
18. 2^n
19. 4^n
20. 2^(2^x))

1.6.9) Worst case would be if the element does not exist in the n x n array and the algorithm needed to iterate over all elements. This would be O(n^2) so the algorithm is not linear since linear by definition is O(n).

1.6.22) *all logs used are in base 2

by definition:

little o = f(n) <= c*g(n)

= n <= c*nlogn

= 1 <= c*logn

= 1 <= c* 2^logn

= 1<= c* n, for all values where c > 0 and n > 0