Assignment 2

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Exe.1

Solution：

1. 1) (2n)2 = 4n2 , so it is slower a factor of 4.

2) (n+1)2= n2 + 2n + 1, so it is slower an additive 2n+1.

1. 1) (3n)2 = 9n2, so it is slower a factor of 8.

2) (n+1)3= n3 + 3n2 + 3n + 1, so it is slower an additive 3n2+3n+1.

1. 1) 100(2n)2 = 400n2 , so it is slower a factor of 4.

2) 100(n+1)2= 100n2 + 200n + 100, so it is slower a additive 200n+100.

1. 1) 2n\*log(2n), so it is slower an additive 2n\*log2.

2) (n+1)\*log(n+1)，so it is slower an additive log(n+1) + n [log(n+1) - log n].

1. 1) 22n = (2n)2, so it is slower the square of the previous running time.

2) 2n+1, so it is slower a factor of 2.

Exe.5

Solution：

According to the question, assume that ,where C is a constant.

1. Ture.

Proof:

1. False.

Counterexample:

1. True.

Proof: