

A3

1. ACDE

2. (1) $f(n) = 2n(n^2 + 1) = 2n^3 + 2n = O(n^3)$

(2) $f(n) = \frac{1}{5}n^2 + 10n \log n = O(n^2)$

(3) $f(n) = 1^3 + 2^3 + 3^3 + \dots + n^3 = O(n^4)$

3. $\log(\log n) < 2n < 8n^3 + 17n^2 < (1.5)^n$

4. polynomial. $f(n) = n - 1 = O(n)$