$O(f(n))$

$f_1(n) = \sqrt{n} \rightarrow O(\sqrt{n})$

$f_2(n) = n^3 \rightarrow O(n^3)$

$f_3(n) = \binom{n}{4}$

$$= \frac{n!}{4!\,(n-4)!}$$

$$= \frac{n(n-1)(n-2)(n-3)\cancel{(n-4)!}}{4!\,\cancel{(n-4)!}}$$

$$= \frac{(n^2-n)(n-2)(n-3)}{24}$$

$$= \frac{n^4 - 6n^3 + 11n^2 - 6n}{24} \rightarrow O(n^4)$$

$$f_4(n) = \sum_{i=2}^{n} (i-1)$$

$$= 1+2+3+4+5+6+7+\ldots+n-1$$

$$= \frac{n(n-1)}{2}$$

$$= \frac{n^2-n}{2} \rightarrow O(n^2)$$

$$f_3 > f_2 > f_4 > f_1$$

$$\binom{n}{4} > n^3 > \sum_{i=2}^{n} (i-1) > \sqrt{n}$$

Real