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Câu 1:

Thao tac cơ sở: sum++

$$f(n) = \sum_{i=1}^{n}\sum_{j=1}^{i^2}\sum_{k=1}^{j} = \sum_{i=1}^{n}\sum_{j=1}^{i^2}\frac{(j+1)\times j}{2} = \sum_{i=1}^{n}\frac{1}{2}\sum_{j=1}^{i^2}(j^2+j) = \sum_{i=1}^{n}\frac{1}{2}\left(\frac{i^{2^3}}{3}+\frac{(i^2+1)\times i^2}{2}\right)$$
$$= \frac{1}{2}\sum_{i=1}^{n}\left(\frac{i^6}{3}+\frac{i^4+i^2}{2}\right) = \frac{1}{2}\sum_{i=1}^{n}\left(\frac{i^6}{3}+\frac{i^4+i^2}{2}\right) = \frac{1}{6}\sum_{i=1}^{n} i^6 + \frac{1}{4}\sum_{i=1}^{n}(i^4+i^2)$$
$$= \frac{n^7}{42}+\frac{n^5}{20}+\frac{n^3}{12}$$

Bậc tăng trưởng của giải thuật là bậc 7. $O(n^7)$

Câu 2:

```
int xuatHienItNhat(int k){
	return k * sqrt(k) + (k+1)/2;
}
int Cau2(int a[], int L, int R) {
	int res = 1, pre = a[L];
	while (L<=R){
		if(L + xuatHienItNhat(a[L]) <= R){
			L += xuatHienItNhat(a[L]);
		}
		if(a[L] != pre){
			res ++;
			pre = a[L];
		}
	}
	if(a[R] != pre)
		res++;
```

```
    return res;
}
```

Câu 3:

```
void swap(int &i, int &j){
    int tmp = i;
    i = j;
    j = tmp;
}
void Cau3(int a[], int n) {
    int duong = 0, am = 1;
    for(int i = 0; i < n; i++){
        if(i %2 == 0 && a[i] < 0) {
            while(am < n && a[am] < 0) am += 2;
            if(am >= n) {
                while (chan < n && a[chan] > 0) chan += 2;
                if(chan < n)
                    swap(a[i], a[chan]);
            }
            if(am < n) {
                swap(a[i], a[am]);
                am += 2;
            }
        }
        if(i %2 == 1 && a[i] > 0) {
            while(duong < n && a[duong] < 0) duong += 2;
            if(duong >= n) {
                while (am < n && a[am] > 0) am += 2;
                if(am < n)
```

```
                                swap(a[i], a[am]);
                        }
                        if(duong < n) {
                                swap(a[i], a[duong]);
                                duong += 2;
                        }
                }
        }
}
```