```
#include <iostream>
#include <map>
#include <string>

using namespace std;


void calcAddress(int base, int rowlb, int collb, int rowub, int colub, int elementsize){

   cout << "For array a[" << rowlb << ":" << rowub << " ," << collb << ":" << colub << "] "
        << "with elementsize size " << elementsize << endl;


   int n = colub - collb + 1;

   // int loc[];

   map<string, int> location;


   for (int i = rowlb; i <= rowub; i++){
      for (int j = collb; j <= colub; j++){
         location["a["+to_string(i)+", "+to_string(j)+"]"] = base - (((rowlb * n) + collb) * elementsize) +
(((i * n) + j) * elementsize);
         // cout << "a[" << i << ", " << j << "] address = " << loc << endl;
      }
   }

   for (auto x : location){
      cout << x.first << " = " << x.second << endl;
   }
}
```

```
int main()
{
   calcAddress(1200, 0, 0, 2, 2, 1);
   cout << endl;

   calcAddress(100, 1,1,2,2,2);
   cout << endl;

   calcAddress(100, 2, 3, 4,5,4);
   cout << endl;

   calcAddress(100, -1, -1, 1, 2, 8);

   return 0;
}
```

OUTPUT

```
For array a[0:2 ,0:2] with elementsize size 1
a[0, 0] = 1200
a[0, 1] = 1201
a[0, 2] = 1202
a[1, 0] = 1203
a[1, 1] = 1204
a[1, 2] = 1205
a[2, 0] = 1206
a[2, 1] = 1207
a[2, 2] = 1208

For array a[1:2 ,1:2] with elementsize size 2
a[1, 1] = 100
```

a[1, 2] = 102

a[2, 1] = 104

a[2, 2] = 106

For array a[2:4 ,3:5] with elementsize size 4

a[2, 3] = 100

a[2, 4] = 104

a[2, 5] = 108

a[3, 3] = 112

a[3, 4] = 116

a[3, 5] = 120

a[4, 3] = 124

a[4, 4] = 128

a[4, 5] = 132

For array a[-1:1 ,-1:2] with elementsize size 8

a[-1, -1] = 100

a[-1, 0] = 108

a[-1, 1] = 116

a[-1, 2] = 124

a[0, -1] = 132

a[0, 0] = 140

a[0, 1] = 148

a[0, 2] = 156

a[1, -1] = 164

a[1, 0] = 172

a[1, 1] = 180

a[1, 2] = 188