First Name Last Name

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Review: Multidimensionals Arrays

1.

```
int a[4][5] =  { {7,9,3,8,9},
                 {4,6,9,5},
                 {2,13,6},
                 {12,1,5,2}};
int *p = &a[1][6];
int (*q)[5] = &a[1];
```

Given that this computer has 4-byte int's and pointers, give the value of the following expressions.

```
    a)  *p                //

    b)  sizeof (a)        //

    c)  *(*a + 3)         //

    d)  *p - *(*(a + 2)) //

    e)  *(*(a + 3))       //


    f)  *(*(a + 1) + 1)   //

    g)  *(*a + 1) + 1     //

    h)  sizeof (q)        //

    i)  p[-1]             //

    j)  *a[2]             //


    k)  **q               //

    l)  *q[0]             //

    m)  *q[1]             //

    n)  *q[-1]            //

    p)  q += 2;
        *(q[0] + 2)       //
```

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2. Write a function that returns a pointer to a row (the address of the row -NOT the address of its first element) that contains the smallest element in a table of ints. HINT: Use typedef!

3. Write a function that returns a dynamically allocated array of pointers to the smallest elements in each table of a 3D array of ints (one pointer per table).