

1. Each part of this question refers to the following declaration: `int myNums[8][15];`
- How many columns does `myNums` have? _____
 - How many rows does `myNums` have? _____
 - How many elements does `myNums` have? _____
 - Write a statement that assigns the value 728 to the element located in the first column of the first row of `myNums`.
 - Write a statement that assigns the value 617 to the element located in the last column of the last row of `myNums`.

2. What is the output of the following code?

```
int myNums[4][5] = { {2, 4, 6, 8, 10}, {1, 3, 5, 7}, {-1, -5} };
cout << myNums[0][3] << " " << myNums[3][0] << endl;
cout << myNums[1][2] << " " << myNums[2][1] << endl;
cout << myNums[2][3] << " " << myNums[3][2] << endl;
```

3. What is the output of the following code?

```
int widgetsInStock[3][3] = {{10, 4, 0}, {1, 6, 3}, {2, 12, 9}};
enum size {TWO_INCH, FOUR_INCH, SIX_INCH};
enum material {PLASTIC, WOOD, METAL};
cout << widgetsInStock[FOUR_INCH][PLASTIC] << " ";
cout << widgetsInStock[TWO_INCH][METAL] << endl;
```

4. a. What is the output of the following code? Be careful! I'm trying to trick you.

```
int myArray[2][2] = {{10, 4}, {1, 6}};
for (int row = 0; row < 2; row++)
{
    for (int col = 0; col < 2; col++)
        cout << setw(5) << myArray[col][row];
    cout << endl;
}
```

b. What is the output of the following code? Be careful!

```
int myArray[2][2] = {{10, 4}, {1, 6}};
for (int i = 1; i >= 0; i--)
{
    for (int j = 1; j >= 0; j--)
        cout << setw(5) << myArray[i][j];
    cout << endl;
}
```

c. What is the output of the following code? Be careful!

```
int myArray[2][2] = {{10, 4}, {1, 6}};
for (int row = 0; row < 2; row++)
{
    for (int col = 0; col < 2; col++)
        cout << setw(5) << myArray[row][col];
}
```

5. a. What is the output of the following code?

```
int myNums[3][3] = {{10, 4, 0}, {1, 6, 3}, {2, 11, 9}};
int sum = 0;
int col = 1;
for (int row = 0; row < 3; row++)
    sum += myNums[row][col];
cout << sum << endl;
```

b. What is the output of the following code?

```
int myNums[3][3] = {{10, 4, 0}, {1, 6, 3}, {2, 11, 9}};
for (int row = 0; row < 3; row++)
{
    int sum = 0;
    for (int col = 0; col < 3; col++)
        sum += myNums[row][col];
    cout << sum << " ";
}
```

6. a. Using the Windows calculator, convert decimal 4699234 to hex. _____
- b. Using the Windows calculator, convert hex 3A64D7 to decimal. _____
7. Using the `sizeof` operator, find out how many memory cells the following data types occupy in Visual Studio.
- a. `int` _____
- b. `double` _____
- c. `char` _____
- d. `bool` _____
8. What is the output of the following code?
- ```
int age, myNums[15];
double salary, myDoubles[100];
cout << sizeof(age) << endl;
cout << sizeof(salary) << endl;
cout << sizeof(myNums) << endl;
cout << sizeof(myDoubles) << endl;
```
9. Suppose `salary` is a `double` variable that is stored in memory starting at address 2371000. What is the last address in the block of addresses that this variable occupies?
10. Suppose `myDoubles` is a one-dimensional `double` array that contains 100 elements. Also suppose that `myDoubleArray`'s base address is 2754100. At what address does `myDoubleArray[15]` start?
11. Suppose `myBoolArray` is a two-dimensional `bool` array with 3 rows and 4 columns. Also suppose that the `myBoolArray`'s base address is 2754348. Which address is occupied by `myBoolArray[1][0]`?