Arrays Challenge Sheet

1. Which of the following choices is the correct syntax for declaring/initializing an array of ten integers?
   a. `int[10] a = new int[10];`
   b. `int[] a = new int[10];`
   c. `[]int a = [10]int;`
   d. `int a[10] = new int[10];`
   e. `int a[10];`

2. Write code that creates an array of integers named data of size 5 with the following contents: `[27, 51, 33, -1, 101]`

3. Write code in JGrasp that creates an array named `odds` and stores all odd numbers between -6 and 38 into it using a `for` loop. Make the array's size exactly large enough to store the numbers.

4. What elements does the array `numbers` contain after the following code is executed? (Write the elements in the format: {0, 1, 2, ...})

```
int[] numbers = new int[8];
numbers[1] = 4;
numbers[4] = 99;
numbers[7] = 2;

int x = numbers[1];
numbers[x] = 44;
numbers[numbers[7]] = 11;
```

5. Write a method that takes an array of integers as a parameter and swaps the first element with the last one.

6. Challenge: An array of integers `scores` has at least two elements, and its elements are arranged in ascending order (that is, `scores[i] <= scores[i + 1]`) Write a condition that tests whether all the elements in `scores` have the same value. **Hint**: you don't need a loop.

7. Challenge: Write a method `getRandomRps` that returns a character `'r'`, `'p'`, or, `'s'`, chosen randomly with odds of 3 : 5 : 6 respectively. **Hint:** declare an array of `char`s and initialize it with values `'r'`, `'p'`, and `'s'`, with each value occurring a number of times proportional to its desired odds. Return a randomly chosen element of the array.

8. Challenge: Write a method that returns an array filled with the first *n* Fibonacci numbers. The first element should be $F_0 = 0$, the second element should be $F_1 = 1$; each subsequent element should be equal to the sum of the two previous ones. For example, `fibonacci(6)` should return an array with seven elements: 0, 1, 1, 2, 3, 5, 8.

Arrays Answer Sheet

1. B (Practice-It)
2. int[] data = {27, 51, 33, -1, 101}; (Practice-It)
3. (Practice-It) You should test in Java but:

```
int odds[] = new int[(38 - (-6))/2];

for(int i = 0, j = -5; j < 38; i++, j+=2)
        odds[i] = j;
```

4. {0, 4, 11, 0, 44, 0, 0, 2} (Practice-It)
5. Test in JGrasp (Java Methods Book)
6. Test in JGrasp (Java Methods Book)
7. Have us come and check it (Java Methods Book)
8. Test in JGrasp (Java Methods Book)