Sample Quiz - Arrays and Methods

For all these programs, write a main method to call and test out each one. If you like, you can write all methods within the same class. You may use helper methods where you deem appropriate.

Problem #0 - Swap.java

Write a method, swap, that takes an array of double values and two integer indices, i and j. The method then swaps the values of the elements in the array at positions i and j. The method header is as follows:

```
public static void swap(double[] list, int i, int j)
```

Problem #1 - PrintOddIndices.java

Here we have a program that creates an integer array. Fill in the method `printOddIndices` to print out just the elements stored at the odd indices of the array.

For example, the following code:

```
int[] arr = new int[] {10, 20, 30, 40};
printOddIndices(arr);
```

Should print out:

```
20
40
```

Because the odd indices in arr are 1 and 3, and index 1 stores the value 20 and index 3 stores the value 40.

```
class PrintOddElements
{
    public static void main(String[] args)
    {
        int[] oddIndexArray = new int[] {1, 2, 3, 4, 5};
    }
    public static void printOddIndices(int[] arr)
    {
        // Start here!
    }
}
```

Problem #2 - LastMultiple.java

Write a method that returns the index of the last value in the array that is a multiple of 3.

For example, in the array `[4, 7, 9, 7, 12]` the last multiple of three is '12', which occurs at index 4.

Hint: You can check if a number is multiple of 3 by using the modulus operator (%). If the result is 0, the number is a multiple of 3.

Problem #3 - IntOrString.java

Write a method that given a string it will determine if it is an integer.

For example, the string "123" is an integer, but the string "hello" is not.

It is an integer if all of the characters in the string are digits.

Return true if it is an integer, or false if it is not.

Hint: There is a method `Character.isDigit()` that takes a char as an argument and returns a boolean value.

Problem #4 - ReplaceLetter.java

Write a method that replaces all instance of one letter with another.
For example,

```
replaceLetter("hello", 'l', ‘y')
```

returns

"heyyo"

Problem #5 - Factors.java

Write a method that will take an integer parameter, n, and return an int array with all of n’s factors in ascending order.

For example,
`findFactors(8)`

returns

```
[1, 2, 4, 8]
```