

Exercises: Methods

Code Writing

For each of the following questions, consider 1) what the method should be called, 2) what parameters it should have, and 3) what value it should return.

1. Write a method to find and return the max of two `int` numbers. Return the number if they are the same. Do not use the `max` method.

Solution:

```
public static int findMax(int num1, int num2) {
    if (num1 > num2) {
        return num1;
    } else {
        return num2;
    }
}
```

2. Write a method to convert a `String` into a character array. Do not use the `toCharArray` method.

Solution:

```
public static char[] convertToCharArr(String str) {
    char[] arr = new char[str.length()];

    for (int i = 0; i < arr.length; i++) {
        arr[i] = str.charAt(i);
    }

    return arr;
}
```

3. Write a method to generate the substring of a `String` that has parameters for the `String` itself and two `int` values for the beginning and end of the substring, and works similar to the Java-provided `substring` method. Do not use the `substring` method.

Solution:

```
public static String mySubstring(String str, int begin, int end) {
    String toReturn = "";

    for (int i = begin; i < end; i++) {
        toReturn += str.charAt(i);
    }

    return toReturn;
}
```

4. Write a method to determine whether or not two arrays of `int` values are equal, where equality is defined by the two arrays being of the same length and having the same values in the same order.

Solution:

```
public static boolean isEqual(int[] arr1, int[] arr2) {  
  
    if (arr1.length != arr2.length) {  
        return false;  
    }  
  
    for (int i = 0; i < arr1.length; i++) {  
        if (arr1[i] != arr2[i]) {  
            return false;  
        }  
    }  
  
    return true;  
}
```

5. Write a method to print the contents of an array of `String` values to the console.

Solution:

```
public static void printArr(String[] arr) {  
  
    for (int i = 0; i < arr.length; i++) {  
        System.out.println(arr[i]);  
    }  
  
}
```

Code Reading

6. Given the methods on the **Method Worksheet** starting on page 5, what is the output of the following program?

```
public class MethodChallengejava01 {
    public static void main(String[] args) {
        purple(2);
        b2(1, true);
        System.out.println();
        a4(true);
        c10("cs", 5);
        b2(1, false);
    }
}
```

Solution:

```
3.14?
awesome, CS120!
```

7. Given the methods on the **Method Worksheet** starting on page 5, what is the output of the following program?

```
public class MethodChallenge02 {
    public static void main(String[] args) {
        c10("cs", 5);
        f7(false);
        a4(false);
        sb(10);
        b2(2, false);
    }
}
```

Solution:

```
CS120 is awesome sauce!!
```

8. Given the methods on the **Method Worksheet** starting on page 5, what is the output of the following program?

```
public class MethodChallenge03 {
    public static void main(String[] args) {
        apb(false);
        sb(20);
        f7(false);
        ss(17, 2);
        b2(1, false);
    }
}
```

Solution:

```
applesauce is sweet!
```

9. Given the methods on the **Method Worksheet** starting on page 5, what is the output of the following program?

```
public class MethodChallenge04 {
    public static void main(String[] args) {
        ss(-7, 24);
        System.out.print(" ");
        apb(true);
        purple(4);
        b2(10, true);
    }
}
```

Solution:

```
sweet apples 3.1416???????????
```

Method Worksheet

```
public static int f1( int i ) {
    int r;
    for (int x = i; x > 1; --x) {
        r *= x;
    }
    return r;
}
```

```
public static void sb( int p ) {
    String x;
    if (p % 5 == 0) {
        x = "sauce";
    } else {
        x = "butter";
    }
    System.out.print(x);
}
```

```
public static void ss( int x, int y ) {
    String k = "sour";
    if (x + y < 20) {
        k = "sweet";
    }
    System.out.print(k);
}
```

```
public static void a4( boolean c ) {
    String b = "awesome";
    if (c) {
        b = b + ',';
    }
    System.out.print(b + " ");
}
```

```
public static void c10( String p, int n ) {
    System.out.print(p.toUpperCase() + f1(n));
}
```

```
public static void apb( boolean p ) {
    String s = "apple";
    if (p) {
        s = s + 's';
    }
    System.out.print(s);
}
```

More methods on next page

```
public static void f7( boolean i ) {
    if (i) {
        System.out.print(" are ");
    } else {
        System.out.print(" is ");
    }
}
```

```
public static void b2( int g, boolean y ) {
    String m = "";
    for (int i = g; i >= 1; i--) {
        if (y) {
            m = m + "?";
        } else {
            m = m + "!";
        }
    }
    System.out.print(m);
}
```

```
public static void purple( int r ) {
    DecimalFormat df = new DecimalFormat( g42(r) );
    System.out.print(" " + df.format(Math.PI));
}
```

```
public static String g42( int i ) {
    String retval = "0.";
    for (int d = 0; d < i; ++d) {
        retval = retval + "0";
    }
    return retval;
}
```