# Final Review

For Chapters 1–4, see Midterm Review.

## Chapter 5

1. Different services provided by a method and a program. Where do you normally put `readInt`?
2. The pattern of a method definition (parameters and return). What is a predicate method?
3. Designing a method (parameters vs. constants).
4. Calling a method of an object (receiver).
5. The mechanics of the method-calling process (local variables and stack frame). Figure 5-5, p.154.

## Chapter 6

1. Define an instance variable to hold the `RandomGenerator` object. The syntax and the location of the definition.
2. Generating random values (int, double, boolean, Color), Figure 6-1, p. 180.
3. Writing documents in the `javadoc` style. For example, Figure 6-5, pp. 192–193.
4. Defining a class (constructors, methods, instance variables).
5. Constructors and methods with multiple parameter forms under the same name (overloading). For example, Figure 6-7, p. 201.
6. Redefining (overriding) `toString` method. For example, Figure 6-7, p. 202.

## Chapter 7

1. The fundamental unit of information is a *bit*. The unit in memory is *byte* (8 bits). The sizes (in terms of bytes) of the primitive types `char`, `int`, and `double`.
2. Memory size of 1MB is $2^{20}$ bytes to be exact.
3. Converting numbers, decimal, binary, octal, and hexadecimal.
4. Three regions in a memory in which a Java program is stored.
5. Use a stack-heap diagram (address and pointer models) to trace a simple program. For example, the one in section 7.2, p. 226.
6. The wrapper classes for the primitive types, p. 237. Why wrapper classes?
7. What does the special value `null` represent? Where can it be used? Section 7.4, p. 240.

## Chapter 8

1. `String` class vs. `Character` class. Calling the methods in Figure 8-3, p. 262 vs. calling the methods in Figure 8-4, p. 266.
2. What is an immutable class?

## Chapter 11

1. What are the two characteristic properties of an array?
2. Define the following terms: *element* and *index*
3. Declarations of array variables of various types, `int`, `boolean`, `double`, and `String`.
4. Memory representation of an array.
5. Cycling through an array. (The `for` loop, array length, and element selection)
6. The difference between the prefix and postfix forms of the `++` operator.