

Please read Sections 2.9 through 2.13 and Section 2.15 of the textbook and then answer the following, trying not to look at your notes or at the textbook. Quiz #2, on Fri. 2 Sep., will consist exclusively of questions taken from the Part 1 of this homework.

Part I — Questions

Ex. 1. What is the keyword used to declare a constant?

Ex. 2. If one of the operator's operand is a `double`, and the other is a `short`, what is the type of the operator that will be actually used?

Ex. 3. Is there anything wrong with the following statements?

```
double x = 3;
int y = (int)x;
```

Ex. 4. Is there an error in the following statements? If you think there is one, explain the mistake, otherwise, tell what would be the value assigned to the third variable.

```
byte first = 20,
second = 12;
int third = first + second;
```

Ex. 5. Would the following code compile? If not, explain what is the error; if you think it would, give the values assigned to the `x` and `y` variables once the last statement has been executed.

```
public class MyClass
{
    public static void main(String[] args)
    {
        int y;
        x = 3;
        int x = 2;
    }
}
```

Ex. 6. What is a “self-documenting program”?

Ex. 7. Suppose I have a file named `SourceFile.java` with some java code in it. What happen if I run in the folder where `SourceFile.java` is the command `javadoc SourceFile.java`?

Ex. 8. Converting a `double` literal to an `int` literal is a “narrowing”, or a “widening”? Is it performed automatically by Java?

Ex. 9. What sort of comment, if any, can span several lines?

Ex. 10. In the following, does the third statement performs a narrowing, a widening, or neither?

```
int x;  
short y = 15;  
x = y;
```

Ex. 11. Does the following statement performs a *narrowing*, a *widening*, or neither?

```
float myVar = 12.5F;
```

Ex. 12. Is there an error in the following code? Explain what it is, or give what the program would print otherwise.

```
int x = 3, y = 5, z = 7;  
x += (short)y - z;  
System.out.print(x+3);
```

Ex. 13. Assume that `myLastName` is a `String` variable, and that `myLastNameInitial` is a `char` variable. Write a statement that assigns the first character of the string referenced by the `myLastName` variable in `myLastNameInitial`.

Ex. 14. What will the following statement print?

```
System.out.print("Course".charAt(2) + "\n");
```

Ex. 15. Assume that `myLastName` is a `String` variable, and that `length` is an `int` variable. Write a statement that assign the length of the string referenced by the `myLastName` variable in `length`.

Ex. 16. Assume that `myFirstName` is a `String` variable, and that `end` is a `char` variable. Write a statement that assigns the last character of the string referenced by the `myFirstName` variable in `end`. You'll have to use two methods of the `String` class.

Ex. 17. Is `System.in` a class, an object, a method or a variable? Same question for `Scanner`.

Ex. 18. What does the following statement do? Where should it be placed in a code: inside a class body, inside a method body, before the class definition, somewhere else?

```
import java.util.Scanner;
```

Ex. 19. Is there an error in the following statement? Explain what it is, or write what the program would do otherwise.

```
Scanner keyboard = new Scanner(System.out);
```

Ex. 20. What do the following two statements?

```
double test;  
test = keyboard.nextDouble();
```

Ex. 21. Which method of the `Scanner` class would you use to read a `double`?

Ex. 22. How many arguments takes the `charAt` method?

Ex. 23. Is there an error in the following statements? Explain what it is, or write what the program would print otherwise.

```
int x = 3;
System.out.print("x * 3 = " + (x * 3.0));
```

Part II — Programming Exercises

Ex. 1. Write down, on a piece of paper, a program that initializes an `int` variable named `persons` with the value 5, an `int` variable named `bottles` with the value 3, and a `double` variable named `litterPerBottle` with the value 1.5. What should be the type of a variable `litterPerPerson` to be able to be assigned the number of litters every person is going to get, if we split equitably? Write the correct initialization of that variable, and print its value.

Place a comment with a timestamp (i.e., the today's day, and the time at which you wrote the program) at the top of the program. Then, type, compile and run your program into BlueJ.

Ex. 2. Write down, on a piece of paper, a program that

1. imports the `java.util.Scanner` library,
2. declares a `String` variable named `userName`,
3. creates a `Scanner` object and connects it to the `System.in` object,
4. prints "Please, type in your user name:",
5. reads a `String` value from the keyboard and assigns the value to the `userName` variable,
6. declares a `char` variable named `fid` and initializes it with the first character of the string referenced by the `userName` variable,
7. declares a `char` variable named `lid` and initializes it with the last character of the string referenced by the `userName` variable (this will require a clever use of the `length()` method),
8. prints "Your id is" and the content of the `fid` and `lid` variables.

Then, type, compile and run your program into BlueJ.

