

Please read Chapter 1, as well as Section 2.1 through 2.8, of the textbook and then answer the following, trying not to look at your notes or at the textbook. Quizz #1, on Fri. 26 Aug., will consist exclusively of questions taken from the Part 1 of this homework.

Part I — Questions

Ex. 1. List five softwares, and three hardware components of a computer.

Ex. 2. List four programming languages.

Ex. 3. Which of the followings, if any, are key words?

class statement 91.3 apples int "I'm a string"

Ex. 4. A machine code (or machine language program) is made of binary numbers, circuits, Java classes, or compilers?

Ex. 5. How are those elements called: * (multiplication), / (division), % (modulus)? What is the name of the things on which they act?

Ex. 6. Which of the following are programmer-defined names (or identifiers)?

BankAccount class = 91.3 apples int itemPerCapita statement

Ex. 7. Why are variables called “variables”?

Ex. 8. What is the difference between 3, '3' and "3"?

Ex. 9. What is the “input” of a program? What is its “output”?

Ex. 10. What is a pseudo-code? Why is it useful?

Ex. 11. What are logical errors? Should they be tracked before or after tracking syntax errors?

Ex. 12. An objects contains data and performs procedure, but is “method” the data, and “attributes” the procedure, or is it the other way around? What is encapsulation, and what is data hiding?

Ex. 13. Expand the acronym *A.P.I.*, and explain what is the purpose of Java’s API.

Ex. 14. If the `AnneBelkHall` and `SchaeferCenter` are *subclasses* of the `Building` class, how is called the `Building` class? What do those two classes inherit from the `Building` class? Is the `Building` class *less specialized* or *more specialized* than the two other classes?

Ex. 15. What is the relationship between an object and a class? Does two objects have the same data? The same underlying structure?

Ex. 16. What happen when the source code you’re giving to the compiler has syntax error? Is the compiler case-sensitive?

Ex. 17. In a Java program, comments start with `\\` (double backslash) or with `//` (double (forward) slash)? Do they have to end with a `;` (semicolon)?

Ex. 18. What is the limitation, if any, to the number of public classes you can have per Java file? What is the link between public classes and name of the files?

Ex. 19. Complete the following: “The print _____ is a member of the out _____, which is a member of the System _____.” with the words “class”, “object”, and “method”.

Ex. 20. What is the difference, if any, between the print and println methods?

Ex. 21. Which of the following are correct identifier names?

`$myHome3 class my%variable 91.3 ANewHope 9_train _ThisIsAVariable statement`
Is the name `myVariable` the same as `myvariable`? If not, why?

Ex. 22. Which one(s) of the following, if any, is a correct assignment (assuming that `variable`, `x` and `apples` have been declared as `int` variables)?

```
5 => variable;
x=5;
apples= 23
x <= 23;
variable =1,890;
```

Ex. 23. Does a variable have attributes and methods? If your answer is yes, give one example of each.

Ex. 24. Which one(s) of the following, if any, is a correct declaration?

```
int numberOfApples;
int=3;
double length
double distance, mass;
myVariable int;
```

Ex. 25. Write a single statement that declares a `char` variable named `myLetter`, and initialize it with the value `B`.

Ex. 26. Which one(s) of the following, if any, is a correct initialization (i.e., declaration and assignment of variables in one statement)?

```
int numberOfApples = 23;
int month = 2, days;
char firstLetter = 'c'
double temperature = 23,4;
int myId = "aubertc";
aVariable += 3;
```

Ex. 27. For each of the following three divisions, say if they perform integer division or floating-point division. For each of them, write what will be stored in the variable `result`.

```
double result;
result = 20 / 6; // Equation 1
result = 10.0 / 4; // Equation 2
result = 10 / 4.0; // Equation 3
```

Ex. 28. Calculate the outcome of the following operations:

```
7 + 10%2
(-2 + 3) * 3
6 + 3 * 7.0%2
120 - (4/1 + 3)
```

Ex. 29. Write a statement that declares an `int` named constant and assign to it the value 271. In which case (i.e., uppercase or lowercase) are usually written constants?

Part II — Programming Exercises

Ex. 1. Write down, on a piece of paper, a program that prints on the screen your name on the first line, your address on the second line, and your email on the *fourth* line. The third line should be kept blank. 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. declares an `int` constant named `CLASSROOM`,
2. initializes `CLASSROOM` with 310,
3. declares an `int` variable named `numberOfStudents`,
4. initializes `numberOfStudents` with 37,
5. prints "Class meet in classroom ", and then the content of `CLASSROOM`,
6. using combined assignment operators, decrements `numberOfStudents` by 5,
7. prints, on a new line, "We now are ", and then the content of `numberOfStudents`,
8. uses combined assignment operators to increment `numberOfStudents` by 2,
9. prints, on a new line, "We now are ", and then the content of `numberOfStudents`.

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

