

JB0150R REVIEW: A GENTLE INTRODUCTION TO JAVA DATA TYPES*

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Abstract

This module contains review questions and answers keyed to the module titled Jb0150: Java OOP: A Gentle Introduction to Java Data Types.

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2 Preface

This module contains review questions and answers keyed to the module titled Jb0150: Java OOP: A Gentle Introduction to Java Data Types ¹ .

The questions and the answers are connected by hyperlinks to make it easy for you to navigate from the question to the answer and back again.

3 Questions

3.1 Question 1 .

True or false? Java is a type-sensitive language.

Answer 1 (p. 9)

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¹<http://cnx.org/content/m45141>

3.2 Question 2

True or false? Data type **double** involves whole numbers only (*no fractional parts are allowed*) .

Answer 2 (p. 9)

3.3 Question 3

True or false? Type **double** involves numbers with fractional parts.

Answer 3 (p. 9)

3.4 Question 4

True or false? All Java data types conceptually have something to do with numeric values.

Answer 4 (p. 9)

3.5 Question 5

True or false? The Java **char** type deals conceptually with the letters of the alphabet, the numeric characters, and the punctuation characters.

Answer 5 (p. 8)

3.6 Question 6

True or false? For every different type of data used with a particular programming language, there is a specification somewhere that defines two important characteristics of the type:

1. What is the set of all possible data values that can be stored in an instance of the type?
2. Once you have an instance of the type, what are the operations that you can perform on that instance alone, or in combination with other instances?

Answer 6 (p. 8)

3.7 Question 7

True or false? If you have an instance of the **byte** type, the set of all possible values that you can store in that instance is the set of all the whole numbers ranging from -256 to +255.

Answer 7 (p. 8)

3.8 Question 8

Name or describe four of the operations that you can perform with data of type **short** .

Answer 8 (p. 8)

3.9 Question 9

True or false? Java data types can be subdivided into two major categories:

- Primitive types
- User-defined or reference types

Answer 9 (p. 8)

3.10 Question 10

True or false? The primitive types are not part of the core language.

Answer 10 (p. 8)

3.11 Question 11

True or false? For purposes of discussion, primitive types can be subdivided into four categories:

- Whole-number types
- Floating-point types
- Character types
- Boolean types

Answer 11 (p. 8)

3.12 Question 12

True or false? In Java, there are three different whole-number types:

- byte
- short
- int

Answer 12 (p. 8)

3.13 Question 13

True or false? The whole-number types differ in terms of the range of values that they can accommodate and the amount of computer memory required to store instances of the types.

Answer 13 (p. 7)

3.14 Question 14

True or false? Java provides an unsigned version of all of the primitive whole-number types.

Answer 14 (p. 7)

3.15 Question 15

True or false? Floating point types represent values as a mantissa containing a decimal point along with an exponent value that tells how many places to shift the decimal point to the left or to the right in order to determine the true value.

Answer 15 (p. 7)

3.16 Question 16

True or false? With a floating point type, positive exponent values mean that the decimal point should be shifted to the left. Negative exponent values mean that the decimal point should be shifted to the right.

Answer 16 (p. 7)

3.17 Question 17

True or false? Java supports two different floating point types:

- float
- double

Answer 17 (p. 7)

3.18 Question 18

True or false? The purpose of the `char` type is to make it possible to represent the letters of the alphabet, the punctuation characters, and the numeric characters internally in the computer. This is accomplished by assigning a numeric value to each character.

Answer 18 (p. 7)

3.19 Question 19

True or false? The `char` type uses a standard character representation known as **Unicode** to represent up to 65,535 different characters.

Answer 19 (p. 7)

3.20 Question 20

True or false? In Java, you usually represent a character in your program by surrounding it with quotation marks as shown below:

```
"A".
```

Answer 20 (p. 7)

3.21 Question 21

True or false? The boolean type can have three values:

- true
- false
- maybe

Answer 21 (p. 6)

3.22 Question 22

True or false? Java is an *extensible* programming language, meaning that there is a core component to the language that is always available. Beyond the core component, different programmers can extend the language in different ways to meet their individual needs.

Answer 22 (p. 6)

3.23 Question 23

True or false? As is the case in C++, one of the ways that individual programmers can extend the Java language is to create overloaded operators for the primitive types.

Answer 23 (p. 6)

3.24 Question 24

True or false? One of the ways that individual programmers can extend the Java language is to create new types.

Answer 24 (p. 6)

3.25 Question 25

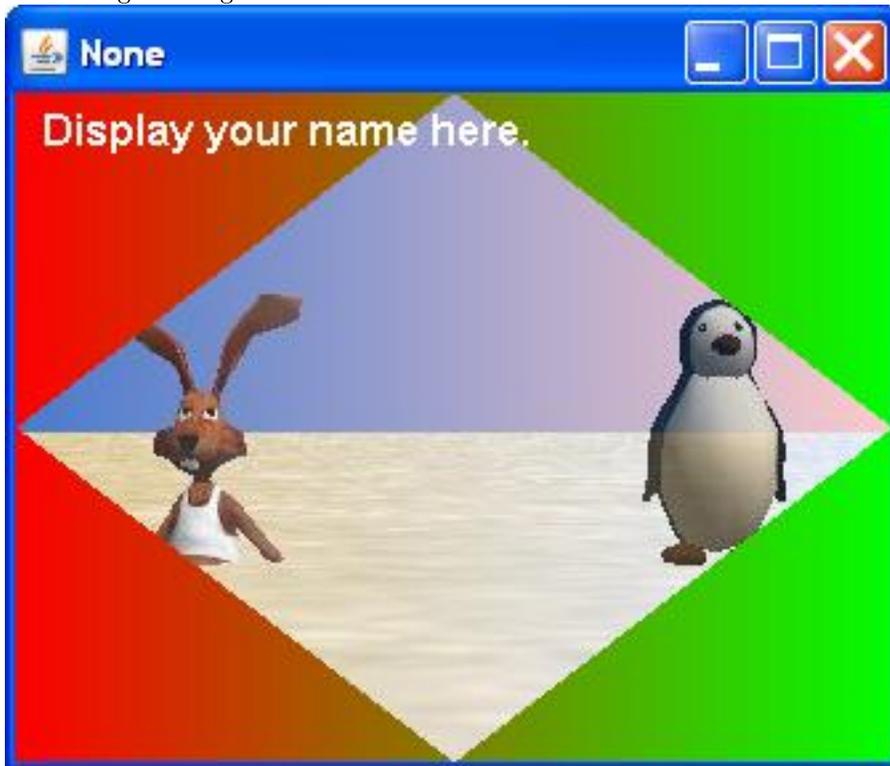
True or false? The specific Java mechanism that makes it possible for programmers to define new types is a mechanism known as the *class definition* .

Answer 25 (p. 6)

What is the meaning of the following two images?

This image was inserted here simply to insert some space between the questions and the answers to keep them from being visible on the screen at the same time.

The image is also an example of the kinds of things that we do in my course titled ITSE 2321, Object-Oriented Programming.



This image was also inserted for the purpose of inserting space between the questions and the answers.



4 Answers

4.1 Answer 25

True.

Back to Question 25 (p. 5)

4.2 Answer 24

True.

Back to Question 24 (p. 4)

4.3 Answer 23

False. Java does not allow programmers to create overloaded operators for the primitive types.

Back to Question 23 (p. 4)

4.4 Answer 22

True.

Back to Question 22 (p. 4)

4.5 Answer 21

False. The boolean type can have only two values:

- true
- false

Back to Question 21 (p. 4)

4.6 Answer 20

False. In Java, you usually represent a character in your program by surrounding it with apostrophes as shown below:

'A'.

Back to Question 20 (p. 4)

4.7 Answer 19

True.

Back to Question 19 (p. 4)

4.8 Answer 18

True.

Back to Question 18 (p. 4)

4.9 Answer 17

True.

Back to Question 17 (p. 3)

4.10 Answer 16

False. With a floating point type, positive exponent values mean that the decimal point should be shifted to the **right** . Negative exponent values mean that the decimal point should be shifted to the **left** .

Back to Question 16 (p. 3)

4.11 Answer 15

True.

Back to Question 15 (p. 3)

4.12 Answer 14

False. Other than type **char** , there are no unsigned whole-number primitive types in Java.

Back to Question 14 (p. 3)

4.13 Answer 13

True.

Back to Question 13 (p. 3)

4.14 Answer 12

False. In Java, there are five different whole-number types:

- byte
- short
- int
- long
- char

Back to Question 12 (p. 3)

4.15 Answer 11

True.

Back to Question 11 (p. 3)

4.16 Answer 10

False. The primitive types are part of the core language.

Back to Question 10 (p. 2)

4.17 Answer 9

True.

Back to Question 9 (p. 2)

4.18 Answer 8

Four of the possible operations are:

- You can add them together.
- You can subtract one from the other.
- You can multiply one by the other.
- You can divide one by the other.

Back to Question 8 (p. 2)

4.19 Answer 7

False. If you have an instance of the **byte** type, the set of all possible values that you can store in that instance is the set of all the whole numbers ranging from -128 to +127.

Back to Question 7 (p. 2)

4.20 Answer 6

True.

Back to Question 6 (p. 2)

4.21 Answer 5

True.

Back to Question 5 (p. 2)

4.22 Answer 4

False. In Java, data type **boolean** conceptually has nothing to do with numeric values, but deals only with the concept of **true** or **false** .

Back to Question 4 (p. 2)

4.23 Answer 3

True.

Back to Question 3 (p. 2)

4.24 Answer 2

False. Some data types such as type **int** involve whole numbers only (*no fractional parts are allowed*) .

Back to Question 2 (p. 2)

4.25 Answer 1

True.

Back to Question 1 (p. 1)

5 Miscellaneous

This section contains a variety of miscellaneous information.

NOTE: Housekeeping material

- Module name: Jb0150r Review: A Gentle Introduction to Java Data Types
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