华夏中文学校 AP Computer Science

Princeton Review

Table of Contents

How to crack?

Quiz-1

- Language Basic
  1. Consider the following code segment:

```
int a 10;
double b = 10.7;
int d = a + b;
```

Line 3 will not compile in the code segment above. With which of the following statements could we replace this line so that it compiles?

```
I.      int d = (int) a + b
II.     int d = (int) (a + b);
III.    int d = a + (int)b;
```

```
(A) I
(B) II
(C) III
(D) I and III
(E) II and III
```

- Exclution method
  1. Consider the following code segment.

```
int a = 11;
int b = 4;
double x = 11;
double y = 4;
System.out.print(a/b) ;
System.out.print(", ") ;
System.out.print(x/y) ;
System.out.print(", ") ;
System.out.print(a/y) ;
```

What is printed as a result of executing the code segment?

```
(A) 3, 2.75, 3
(B) 3,2.75,2.75
(C) 2,3.2
(D) 2, 2.75,2.75
(E) Nothing will be printed because of a compile-time error.
```

> a/b=2,(A),(B) and (E) wrong; should have 3 output, (C) wrong; (D) is answer.

- Output Table
  1. Consider the following code segment.

```
int val1 = 2, val2 = 22, val3 = 78;
while (val2 % val1 == 0 || val2 % 3 == 0 ){
        val3++;
        val2--;
}
```

What will val3 contain after the code segment is executed?

```
(A) 77
(B) 78
(C) 79
(D) 80
(E) None of the above
```

val2	val3
21	79
20	80
19	81

- Reverse thinking
    1. Assuming all other statements in the program are correct, each of the following statements will allow the program to compile **EXCEPT**

        ```
        (A) system.out.print(1);
        (B) System.out.print("1");
        (C) System.out.print(side1);
        (D) System.out.print"side1");
        (E) All of the above statements will compile.
        ```

> Because the **EXCEPT**, think about which one is a **FALSE** statement.

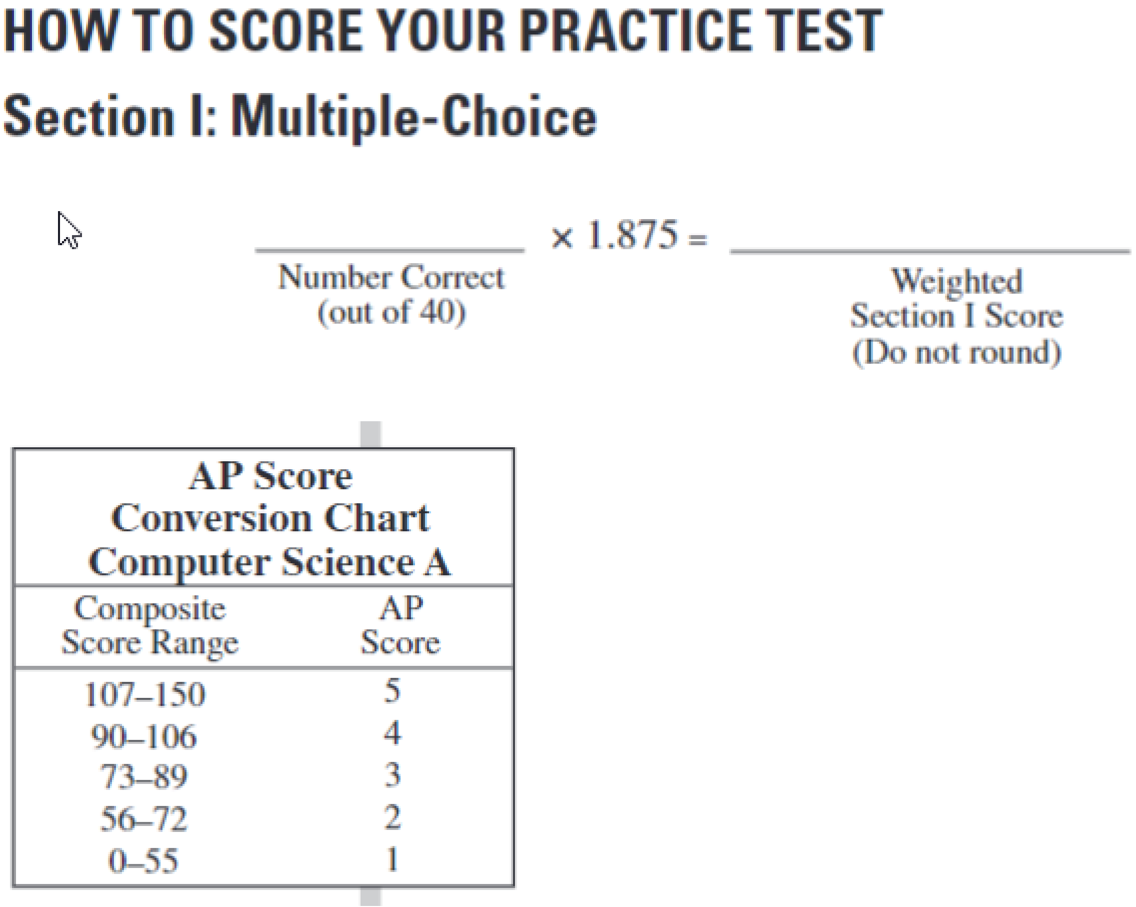
- Thinking the way of the tester (allow tester make mistake)
    1. Assuming all other statements in the program are correct, each of the following statements will allow the program to compile **EXCEPT**

```
(A) //This is a comment
(B) /* This is a comment*/
(C) // myName is a good identifier name
(D) // myname is a good identifier name
(E) All of the above statements will compile.
```

Don't make yourself too good!

Score Conversion

- Weighted score



HOW TO SCORE YOUR PRACTICE TEST

Section I: Multiple-Choice

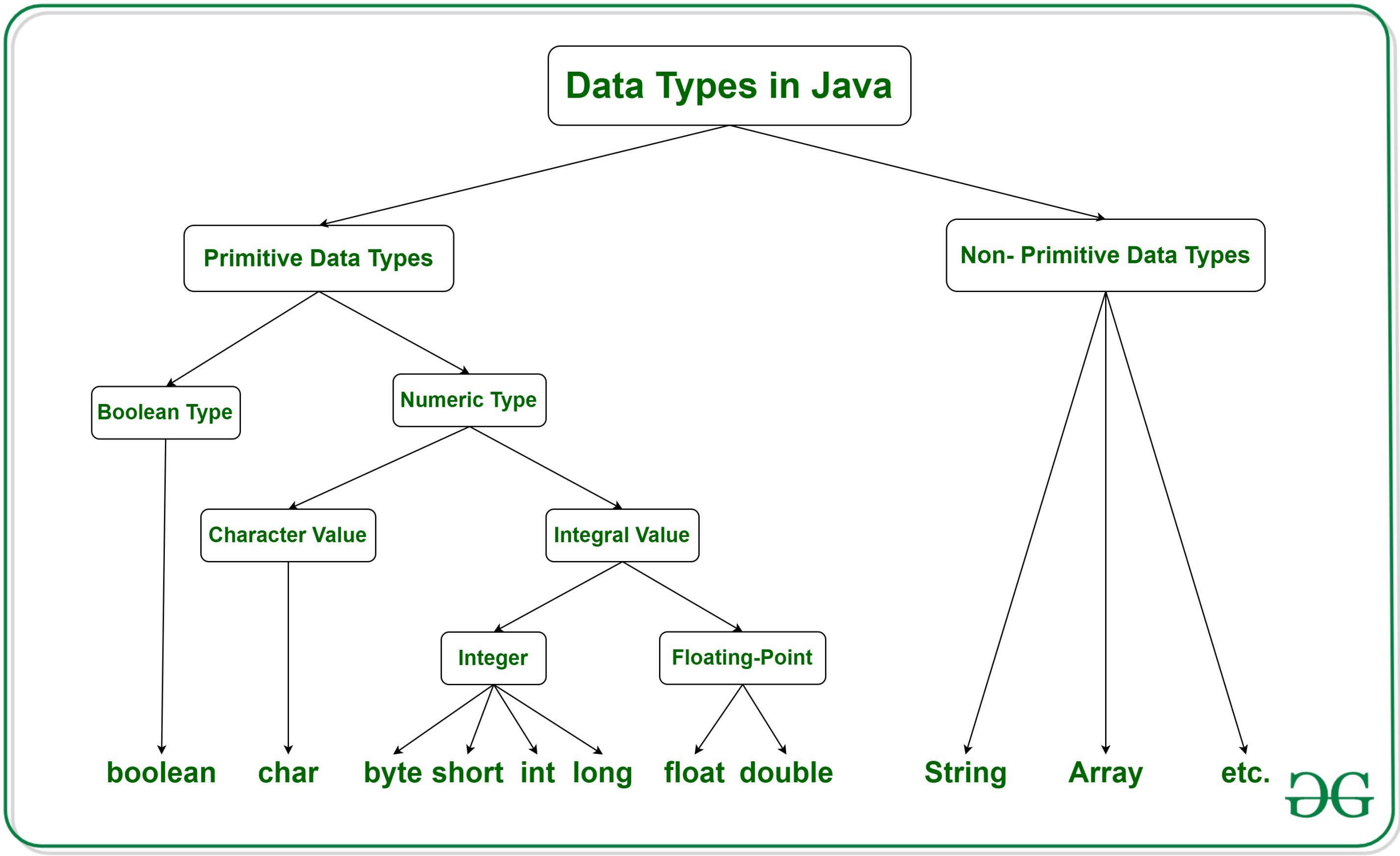
________________ × 1.875 = ________________

Number Correct
(out of 40)

Weighted
Section I Score
(Do not round)

AP Score Conversion Chart Computer Science A	
Composite Score Range	AP Score
107–150	5
90–106	4
73–89	3
56–72	2
0–55	1

Data Type



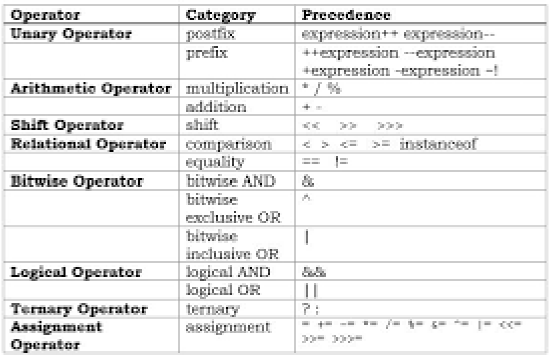
Precedence of Arithmatic operators

- Question1_3.java;

  Java Operator Precedence

Operators	Precedence
postfix increment and decrement	++ --
prefix increment and decrement, and unary	++ -- + - ~ !
multiplicative	* / %
additive	+ -
shift	<< >> >>>
relational	< > <= >= instanceof
equality	== !=
bitwise AND	&
bitwise exclusive	OR ^

Operators	Precedence
bitwise inclusive	OR
logical AND	&&
logical OR	
ternary	? :
assignment	= += -= *= /= %= &= ^=



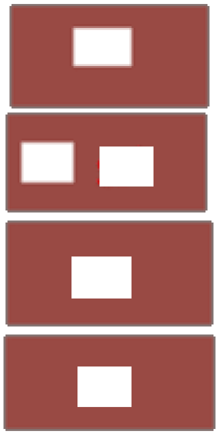
Operator	Category	Precedence
Unary Operator	postfix	expression++ expression--
	prefix	++expression --expression +expression -expression ~!
Arithmetic Operator	multiplication	* / %
	addition	+ -
Shift Operator	shift	<< >> >>>
Relational Operator	comparison	< > <= >= instanceof
	equality	== !=
Bitwise Operator	bitwise AND	&
	bitwise exclusive OR	^
	bitwise inclusive OR	|
Logical Operator	logical AND	&&
	logical OR	||
Ternary Operator	ternary	? :
Assignment Operator	assignment	= += -= *= /= %= &= ^= |= <<= >>= >>>=

- 口诀

一元先，二元后，
先乘除模后加减，
左右移，小大等，
位操作后与或算，
三元算符在后头，
赋值永远最后建。

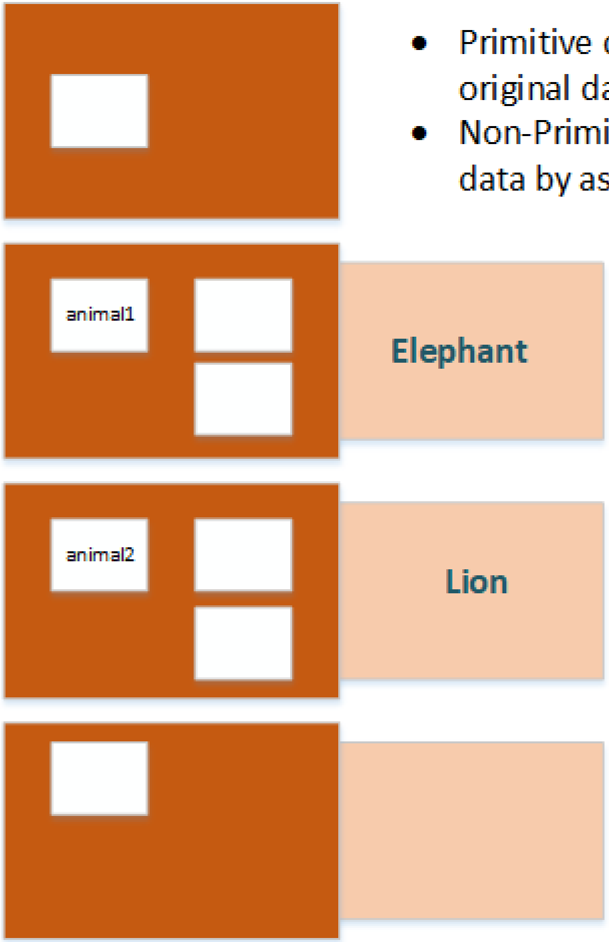
Method Pass by Reference

- Question4.java; String is immutable



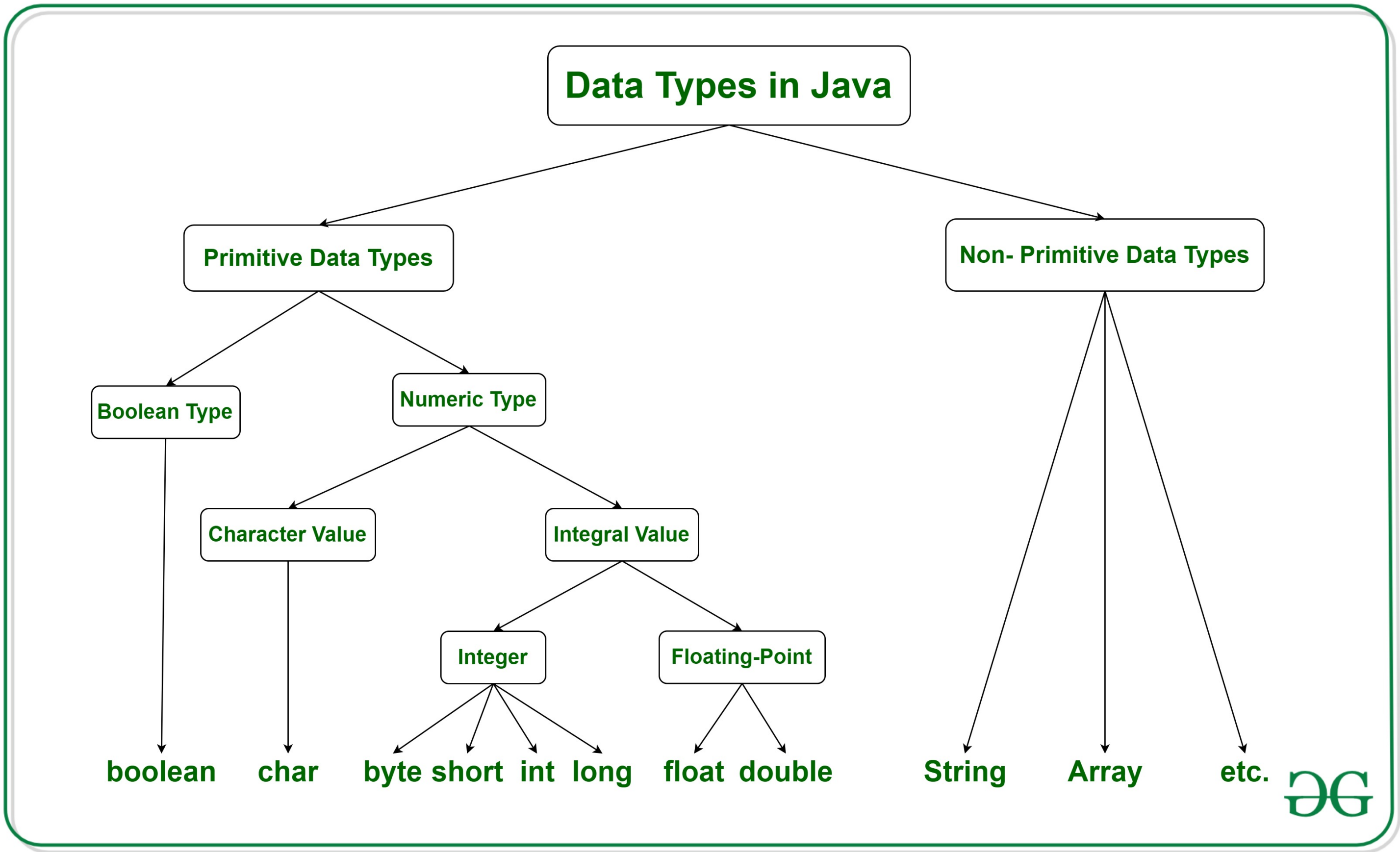
Hello

- Primitive data type will never make change on original data
- Non-Primitive data type can make change on original data by assign value.



Memory like drawer:

- You take out what you put in.
- You can add as many as tags on the drawer
- swap tag does not take effects on contents
- Only way to change memory content is put new staff in it.
- You can take out as many as copy from the memory.



- PassByReference.java; swap student, int, String

String class document

Create Instance of Class

- Constellation.java;
  - Question5: contructor arguments signature
  - Question6:

Array

- Array1.java; passed by reference

String

- Question10.java; memory location
- Question11.java; String index, String.length(), String.substring(), List.size(), array.length; String==char[]

Operator

- Question1_3.java; precendence of operators,
- Question9.java; logical operator

Loop

- Question12.java; Embedded for-loop count
- Question14.java; 1. how many symble? 2. start with symble or space?
- Question15.java; stop calculate when the number reach the point.

If-else

- Question7.java;
- Question8.java;

Function

- Constellation.java; Constructor signature
- Question17.java; recursion call

Data Structure

- Question40.java; Binary search

Complete Class

Section II

- DiceSimulation.java;
    - understand Math.random().

> static double random()
> Returns a double value with a positive sign, greater than or equal to 0.0 and less than 1.0.

Official Documentation

Questions

- Question1_3.java; Precedence of operators, int/int->int, escape sequence Perecedence
- Question4.java; Pass by reference Pass By Reference
- Constellation.java; Constructor signature
- Question7.java; if-else
- Question8.java; if-else, String.compareTo(), sort()
- Question9.java; logical operator
- Question10.java; memory location
- Question11.java; string==>character array
- Question12.java; loop
- Question13.java; loop & if-else, try small n
- Question14.java; 1. how many symble? 2. start with symble or space?
- Question15.java; stop calculate when the number reach the point.
- Question16.java; loop, if-else
- Question17.java; recursion call
- Question40.java; Binary search
-