## Types of Integers (byte, short, int, long):

Byte = 8 bits

Short = 2 bytes – 16 bits

Int = 4 bytes – 32 bits

Long = 8 bytes – 64 bits

## Two types of precision numbers (float, double):

Float: 32 bits (7 digits)

Double: 64 bits (15-16 digits)

## Character type (char):

Answer: It represents a single character. In Java they are called primitive data types. Primitive data types are portable across all computer platforms. They are exactly the same values on all platforms. When declared, the variables of these types are created and assigned memory space.

NOTE: All the numeric operators can be applied to characters. When an operand is a character, the character’s Unicode value is used in the operation.

## Operator review:

+ (addition) - (subtraction) \* (multiplication) / (division) % (remainder)

Note: Integer division(/) gives an integer result. The remainder operator (%) gives the remainder of the division.

## Increment Operator (++) and Decrement Operator (--):

These increase or decrease a variable by 1. If the operator is prefixed to the variable, the variable is first incremented or decremented by 1, then used in the expression. If it is a suffix to the variable, the variable is incremented or decremented by 1, but then the original old values is used in the expression.

Int count = 1;

Count++;

Count = 2;

## Casting to convert a value:

You can convert a value to another type. Casting a variable of a type with a small range to a variable of a type with a larger range is known as *widening a type.* Casting a variable of a type with a larger range is known as *narrowing a type.* Widening can be performed automatically but narrowing must be performed explicitly. (more to come, but you can look up more on this.)

## 3 types of Programming Errors (syntax, runtime, and logic errors):

You should know these, they are the same basic errors in any programming language. Syntax – compiler will catch before running (spelled wrong etc)

Runtime – (compiler will throw error at runtime – e.g. divide by zero)

Logic – runs in compiler but doesn’t do what is expected

## Summary of what you saw:

* Variables and declarations (couple different types)
* Assignment statements and Assignment expressions ( = ) Note: i=j=k=l; (works in Java)
* Numeric operators (above at top)
* Displaying time (floating point numbers)
* Term literal (though didn’t use the term) the value, not the name of the value (e.g. 2 not cat)
* Shorthand Operators (+=, -+, \*=, /=,%=)
* Unicode – see what I gave you…
* Escape Sequences for Special Characters

\b, \t, \n, \f, \r, \\, \’, \”

Backspace

Tab

Newline

Form feed

Carriage return

Backslash

Apostrophe

Quotation marks

* String type and concatenation
* The console and using Scanner Class (Scanner input = new Scanner(System.in);

What does nextByte(), nextShort(), nextInt(), nextLong(), nextFloat(), nextDouble(), next(), nextLine(), \’t\, ‘\f’, ‘\r’, or ‘\n’ do?

Returns byte

Returns next short

Returns next int

Returns next long

Returns next float

Returns next double

Returns next token

Returns next line

* print and println (check computeChange.java)
* Comment style (block /\*\* … \*? Verses single line //)
* Naming Conventions (look this up)
* https://www.geeksforgeeks.org/java-naming-conventions/
* Proper Indentation and Spacing
* Programming Errors
* GUI - Specifically Dialogue Boxes
* Conversion of strings to numbers