Variables and Operations Reference Sheet

Data types

Boolean

boolean – true/false

Integers

byte – from -128 to 128
short – from
int – from
long – from

Floating point

float – stores an IEEE 32-bit float
double – stores an IEEE 64-bit float; stores double the capacity/precision

Operators

Boolean operators

Operator	Symbol	Description
Logical AND	&&	Returns true if both inputs are true
Logical OR	||	Returns true if at least one of the inputs are true
Logical NOT	!	Negates the input

Comparison operators

Operator	Symbol	Description
Greater than	>	Outputs true if the first input is greater than the second input
Less than	<	Outputs true if the first input is less than the second input
Greater than or equal to	>=	Outputs true if the first input is greater than or equal to the second input
Less than or equal to	<=	Outputs true if the first input is less than or equal to the second input

Variables and Operations Reference Sheet

Equality operators

Operator	Symbol	Description
Equals	==	Outputs true if the first input is equal to the second input
Not equal	!=	Outputs true if the first input is not equal to the second input

Numeric operators

Operator	Symbol	Description
Addition	+	Sums the two inputs together
Subtraction	-	Subtracts the second input from the first input
Multiplication	*	Multiplies the two inputs together
Division	/	Divides the first input by the second input
Modulus	%	Divides the first input by the second input and returns the remainder

Augmented operators

Operator	Symbol	Description
Addition-assignment	+=	Sums the variable on the left with the expression on the right and stores the output back into the variable
Subtraction-assignment	-=	Subtracts the expression on the right from the variable on the left and stores the output back into the variable
Multiplication-assignment	*=	Multiplies the variable on the left with the expression on the right and stores the output back into the variable
Division-assignment	/=	Divides the variable on the left by the expression on the right and stores the output back into the variable
Modulus-assignment	%=	Divides the variable on the left by the expression on the right and stores the remainder back into the variable

Variables and Operations Reference Sheet

Order of Operations

Operators listed from highest to lowest priority

1. Parentheses
2. Post increment/decrement
3. Pre increment/decrement
4. Logical NOT
5. Multiplicative
6. Additive
7. Comparison (excluding equality)
8. Equality
9. Logical AND
10. Logical OR
11. Assignment (includes augmented operators)

If in doubt, use parentheses. It makes programs easier to read and interpret.

Variables

Variables must be declared before they are assigned a variable. Declaration and assignment can be done in one step.

Variable declaration – tells Java the data type and name of the variable you are going to use later

Variable assignment – stores a value in a variable

```
int a; // variable of type int named a
a = 1; // assign a value of 1 to "a"

int b = 1; // assign and declare int b with a
value of 1
```