AP Computer Science Name: _____
Chapter 6 Notes (3)

DATA TYPES, VARIABLES, and ARTHMETIC

Evaluating Expressions and Operator Precedence:

Category	Operators
postfix	expr++ expr--
unary	++expr --expr +expr -expr - !
casting	(type)
multiplicative	* / %
additive	+ -
shift	<< >> >>>
relational	<> <= >= instanceof
equality	== !
bitwise AND	&
bitwise exclusive OR	^
bitwise inclusive OR	|
logical AND	&&
logical OR	||
ternary	? :
assignment	= += -= *= /= %= &= ^= |= <<= >>= >>>

Example 1:

Write a program that takes input and converts a Fahrenheit degree to Celsius using the formula

$$celsius = \left(\frac{5}{9}\right)(fahrenheit - 32)$$

Case Study: Displaying the Current Time:

`System.currentTimeMillis()` returns the current time in milliseconds elapsed since the time 00:00:00 on January 1, 1970 GMT (Greenwich Mean Time) (Known as the UNIX *epoch*. The epoch is the point when times starts, and 1970 was the year when the UNIX operating system was formally introduced.)

Augmented Assignment Operators:

Operator	Name	Example	Equivalent
`+=`	Addition assignment	`i += 8`	`i = i + 8`
`-=`	Subtraction assignment	`i -= 8`	`i = i - 8`
`*=`	Multiplication assignment	`i *= 8`	`i = i * 8`
`/=`	Division assignment	`i /= 8`	`i = i / 8`
`%=`	Remainder assignment	`i %= 8`	`i = i % 8`

Increment and Decrement Operators:

Operator	Name	Description	Example (`i = 1`)
`++var`	Preincrement	Increment `var` by 1, and use the new `var` value in the statement	`int j = ++i;` `// j is 2, i is 2`
`var++`	Postincrement	Increment `var` by 1, but use the original `var` value in the statement	`int j = i++;` `// j is 1, i is 2`
`--var`	Predecrement	Decrement `var` by 1, and use the new `var` value in the statement	`int j = --i;` `// j is 0, i is 0`
`var--`	Post Decrement	Decrement `var` by 1, and use the original `var` value in the statement.	`int j = i--;` `// j is 1, i is 0`