

Variables, Expressions, and Assignments

Example

```
1 public class Ex {  
2     public static void main(String args[]) {  
3         int jan;  
4         jan = 30 + 1;  
5         System.out.print("Jan has " + jan + " days");  
6     }  
7 }
```

Identifiers

Identifier	a string of characters used as a name for a class method or a variable.
-------------------	---

- Can contain letters, digits, and the underscore symbol.
 - May not start with digit (always start with letter)
 - Case sensitive (This != this)
 - Types
 - Programmer defined
 - “Other” programmer defined (API)
 - Modifiable
 - Reserved and keywords
 - Can't use as an identifier
 - Reserved: const, goto, etc.
 - Keywords: class, public, if, etc.
-

Variable Declaration

Variable	identifier that names a value <ul style="list-style-type: none">• Type (strongly and statically typed)• Storage location
-----------------	---

- Example:

```
1 int x;
```

- Can be constant (can't be changed)

```
1 final int MONTHS;
```

Assignment Statements

I-value	Left side of the equals sign
----------------	------------------------------

Must be a variable identifier

- Right side must be an expression
- Variables are expressions
- “=” is the assignment operator
- Assignment of values to variables must be type compatible at compile time
- Example:

```
1 int x;  
2 x = 5 + 7;  
3 // OR  
4 int y = x;
```

Primitive Types

Integers	byte (8-bit), short (16-bit), int (32-bit), long (64-bit)
Floats	float (32-bit), double (64-bit)
Characters	char (16-bit)

Java uses Unicode
Single quotes

Booleans	true or false
-----------------	---------------

Conversions

- Widening
 - “small to large”
 - short → long
- Narrowing
 - “large to small”
 - Error: Lossy
 - long → short

Glossary

Booleans	true or false
Characters	char (16-bit)
Floats	float (32-bit), double (64-bit)
Identifier	a string of characters used as a name for a class method or a variable.
Integers	byte (8-bit), short (16-bit), int (32-bit), long (64-bit)
I-value	Left side of the equals sign
Variable	identifier that names a value <ul style="list-style-type: none">Type (strongly and statically typed)Storage location