Number, Autoboxing

Number, Integer, Short, Float, etc

Autoboxing

Math
The Number Classes

Normally you will represent numbers with the primitive types int, short, float, etc. Java includes ‘boxed’ object analogues to each of these: Integer, Short, Float, etc.

- Number classes have methods (primitives don’t)
  - toString(), parseInt(), etc.

- Number classes have constants
  - Integer.MIN_VALUE, Short.MAX_VALUE, etc

- Number classes have a space overhead
  - They are instantiated as true objects
Autoboxing

Classes such as `Integer` and `Character` are ‘boxed’ versions of the primitive types `int` and `char` (i.e. object versions of the primitives). Java offers automatic support for boxing and unboxing.

- **Boxing:** `Integer i = 5;`
- **Unboxing:** `int j = i;`
The Math class

The Math class contains methods and constants useful for basic mathematics:

- Constants: Math.PI and Math.E
- Trigonometry: sin(), cos(), etc.
- Rounding: abs(), ceil(), floor(), etc.
- Comparison functions: max(), min()
- Exponentials and logs: exp(), log(), pow(), etc.
- Random number generation: random()