**The Java Math Class**

The Java Math class provides more advanced mathematical calculations than what the basic Java math operators provide. The Math class contains methods for finding the maximum or minimum of two values, rounding values, logarithmic functions, square root, and trigonometric functions (sin, cos, tan etc.).

The Math is located in the java.lang package, and not in the java.math package. Thus, the fully qualified class name of the Math class is java.lang.Math .

The Math.abs() function returns the absolute value of the parameter passed to it. The absolute value is the positive value of the parameter. If the parameter value is negative, the negative sign is removed and the positive value corresponding to the negative value without sign is returned.

The Math.ceil() function rounds a floating point value up to the nearest integer value. The rounded value is returned as a double.

The Math.floor() function rounds a floating point value down to the nearest integer value. The rounded value is returned as a double.

The Math.floorDiv() method divides one integer (int or long) by another, and rounds the result down to the nearest integer value. If the result is positive, the effect is the same as using the Java / division operator described earlier in this text. If the result is negative, however, the result is not the same. With the / division operator the fractions are simply truncated. For positive numbers this corresponds to rounding down. For negative numbers though, truncating the fractions correspond to rounding up.

The Math.min() method returns the smallest of two values passed to it as parameter.

The Math.max() method returns the largest of two values passed to it as parameter.

The Math.round() method rounds a float or double to the nearest integer using normal math round rules (either up or down).

The Math.random() method returns a random floating point number between 0 and 1. Of course the number is not fully random, but the result of some calculation which is supposed to make it as unpredictable as possible.