

Methods with Parameters in Java

```
Class using Methods with Parameters
1 public class Methods
2 {
3     public static int add ( int a, int b )
4     {
5         return (a + b);
6     }
7
8     public static void main ( String args[] )
9     {
10        int r;
11        r = add ( 6, 4 );
12        System.out.println ( r );
13        int p, q;
14        p = 12;
15        q = 7;
16        System.out.println ( add ( p, q ) );
17    }
18 }
```

- The class Methods seen above makes use of methods.
- A **method** is like a small program within a larger program. It is first declared (defined) and then used as often as required in the program. The method 'add' is **declared** (or **defined**) in lines 3 to 6. It is used in lines 11 and 16.
- A method can **return** a value. It can only return one value not more. It can also be declared so that it does not return a value.
- The method name together with the parameter list is called the **signature**. So, these are the signatures of the two methods of the the methods in the above class:
 - add (int a, int b)
 - main (String args[])
- In lines 11 and 16 we have a **method call**.
- a and b are called **parameters** (or **formal parameters**) while the values 6 and 4 (and p and q in line 17) are called **arguments** (or **actual parameters**)

- In the signature, the term that precedes the name of the method is the type of the value returned; if no value is returned this term will be '**void**'.

Exercise

- 1) Write a program that consists of two methods: (1) the main method, (2) a method, called 'area', that calculates the area of a triangle ($A = (\text{base} \times \text{height}) / 2$). The method 'area' has two parameters: 'base' and 'height'. The main method asks the user to input the base and the height. Then it calls 'vol' to calculate the area. Finally, it displays the area.
- 2) Write a program that consists of three methods. One method calculates the volume of a cylinder ($\pi r^2 h$), another calculates the volume of a sphere ($(4/3)\pi r^3$) and the third is the main method. The main method presents a simple menu so that the user can choose which volume to calculate. (Pi can be obtained from Math.PI).
- 3) Write a program with the following methods:
 - A method that converts degrees Centigrade to Fahrenheit ($F = C \times 9/5 + 32$).
 - A method that converts degrees Centigrade to Kelvin ($K = C + 273.15$).
 - The main method that asks the user which conversion she wants to calculate and then performs the required calculation.