# Pi Calculation

The task is to calculate an approximation to the constant Pi (π).

Your solution must be developed in Java, and must be able to be built using either Maven or Ant. You may make use of any additional libraries required in order to aid development (e.g. Spring, JUnit etc), so long as these libraries are not used in the calculation itself.

You should use the following formula for the calculation:



As the calculation above is an approximation, you will need to provide some means of configuring the execution in order to determine when it should stop and return a result.

Please also include an explanation of your solution, including any instructions required to build and/or run it.

Your solution will be judged on a number of criteria, including:

* Correctness. Does it build and run and actually produce an approximation to Pi?
* Testability/Verifiability. Can we easily determine that the calculations are being done correctly?
* Efficiency. Does it make good use of the available resources (CPU, memory etc)
* Readability. Would another developer be able to pick up the solution and easily understand it?
* Maintainability. How easy would it be to make changes to the code in future?

Please note:

+ The expectations is high

+ Your solution must use multi-thread

+ Please DO NOT share/discus your solution to each other.

+ The code must be professional (enough java doc, follow coding convention, no tabs…)

+ Easy to read, and maintenance

+ Have enough unit testcases

+ Have a good document which includes: quoted problem, your solution, your design (explain your classes…), how to build and run your project.

+ If possible please use at least 1 design pattern

+ If possible please define some interfaces for your implementation classes to make it more general