# In-Class Exercise 4-1

Submit your work to moodle before the deadline ( **.c** code for this week)

1. The sine function can be approximated by the following series:

$$Sin(x) = \sum_{k=0}^{\infty} \frac{(-1)^k}{(2k+1)!} x^{2k+1} = x - \frac{x^3}{3!} + \frac{x^5}{5!} - \ldots\ldots\ldots$$

Write a function that computes the sine of a parameter **x**. Use the MIPS floating-point register convention to pass the parameter **x** and to return the function result. All computation should be done using **double-precision** floating-point instructions and registers. Limit your computation to the first **10** terms of the series.
(assumption: **pi** = 3.142)

The signature of this procedure in C would look like this:

```
double  my_sin (double  x);
```

Note: References

[1] How to use SYSCALL system services:
https://courses.missouristate.edu/KenVollmar/mars/Help/SyscallHelp.html

[2] move to coprocessor1 or convert integer to single/double (if the instructions are needed):
Appendix B-72 and B-75 (mtc1/ mtc1.d , cvt.s.w / cvt.d.w )