

Homework Assignment for Week 05

1. Section 10.9: Problems 7, 9, 17, 19, 33, 41, 42, 50(a).

Remark: An interesting fact about problem 50(a) is how fast it converges to π . If you know a little programming in matlab, you are welcome to try the following experiment in matlab:

```
format long;
```

```
P = 2;
```

```
P = P + sin(P); error = abs(P-pi)
```

Repeating the last command a few times (usually you can repeat your previous command by using the 'upper arrow' key in your keyboard), you will see the error decreases rapidly. It converges even faster than Newton's method. Of course the crucial part in this approach is being able to evaluate $\sin(P)$ very efficiently. This is a clever application of Taylor series.

2. Section 10.10: Problems 10, 17, 19, 27, 35, 37, 43, 46, 51, 64, 65, 66, 74.