

Chapter 13

Exercise 2

For $k = 3$, $\mu = 0$, and $\sigma = 1$

$$\omega = \begin{bmatrix} 0.00346697 \\ 0.01439745 \\ 0.04894278 \\ 0.11725292 \\ 0.19802845 \\ 0.23582284 \\ 0.19802845 \\ 0.11725292 \\ 0.04894278 \\ 0.01439745 \\ 0.00346697 \end{bmatrix} \quad Z = \begin{bmatrix} -3 \\ -2.4 \\ -1.8 \\ -1.2 \\ -0.6 \\ 0 \\ 0.6 \\ 1.2 \\ 1.8 \\ 2.4 \\ 3 \end{bmatrix}$$

Exercise 3

ω is the same.

$$A = \begin{bmatrix} 0.04978707 \\ 0.09071795 \\ 0.16529889 \\ 0.30119421 \\ 0.54881164 \\ 1.18221188 \\ 3.32011692 \\ 6.04964746 \\ 11.02317638 \\ 20.08553692 \end{bmatrix}$$

Exercise 4

Approximation = 49994.0293464, while $E[Y] = e^{\frac{\mu+\sigma^2}{2}} = 50011.0870085$. The values are very close to each other considering the magnitude of the guesses.

Exercise 5

Approximation = 4373.33333333

Exercise 6

$$\int_{-10}^{10} g(x) dx = 4373.333333333334$$

In this case, the approximation and the integral are almost identical.

Exercise 7

$\pi \approx 3.14792$

We were told to ignore the second part of this exercise.

Exercise 8

```
def re(sequence, n, d):  
    newsequence = sequence(n,d)  
    return newsequence[n-1]
```

Exercise 9

