Homework 5

Section 2.3

Question 1

Use polynomial fitting to find the formula for the n^{th} term of the sequence $(a_n)_{n\geq 0}$ which starts,

$$4, 5, 8, 13, 20, 29, 40, \ldots$$

Show all your work.

Question 2

Use polynomial fitting to find the formula for the n^{th} term of the sequence $(a_n)_{n\geq 0}$ which starts,

$$2, 5, 9, 14, 20, 27, 35, \ldots$$

Show all your work.

Question 3

Use polynomial fitting to find the formula for the n^{th} term of the sequence $(a_n)_{n\geq 0}$ which starts,

$$0, 2, 5, 12, 26, 50, 87, \ldots$$

Show all your work.

Question 4

Complete Exercise 12 from the textbook.

Section 2.4

Question 5

Solve the recurrence relation $a_n = a_{n-1} + 2^n$ with $a_0 = 3$

Question 6

Find a solution to the recurrence relation $a_n = 5a_{n-1} + 6a_{n-2}$ with $a_0 = 1$ and $a_1 = 13$.

Question 7

Find a solution to the recurrence relation $a_n = 5a_{n-1} - 6a_{n-2}$ with $a_0 = 4$ and $a_1 = 11$.

Question 8

Find a solution to the recurrence relation $a_n = 8a_{n-1} - 16a_{n-2}$ with $a_0 = 3$ and $a_1 = 10$.

Question 9

Complete Exercise 9 from the textbook.