MACM 201 Homework 4 (Quiz Oct. 10)

Textbook problems:

Section	Question
10.2	4
10.2	12

Instructor question(s):

1. For each recursive formula, find the characteristic equation and find the roots (zeros) of this equation.

   (a) $a_n = -2a_{n-1} + 15a_{n-2}$.

   (b) $a_n = 3a_{n-1} - a_{n-2}$.

   (c) $2a_n + 3a_{n-1} + 2a_{n-2} = 0$.

2. Solve the following recurrence relations.

   (a) $a_n = 5a_{n-1} + 6a_{n-2}$ for $n \geq 2$. $a_0 = 4$, $a_1 = 9$.

   (b) $a_n = a_{n-1} + 20a_{n-2}$ for $n \geq 2$. $a_0 = 5$, $a_1 = -2$.

   (c) $a_n = 4a_{n-1} - 4a_{n-2}$ for $n \geq 2$. $a_0 = 3$, $a_1 = 4$.

   (d) $a_n = 2a_{n-1} - 2a_{n-2}$ for $n \geq 2$. $a_0 = 2$, $a_1 = 2$.