

## Math 307: Problems for section 4.4

November 14, 2012

1. Find the solution of the recursion relation

$$x_{n+2} - 2x_{n+1} + 2x_n = 0$$

with initial conditions  $x_0 = 1$  and  $x_1 = 1$  (by hand).

2. Using MATLAB/Octave or otherwise, find  $x_{30}$ ,  $x_{31}$  and  $x_{32}$  for the recursion relation defined by  $x_0 = 0$ ,  $x_1 = 1$  and  $x_2 = 2$  and

$$x_{n+1} = x_n - 2x_{n-1} + x_{n-2}.$$