1. **step 1. Matrix equation in Exercise 14a of Section 7.3**

* A is n-1xn-1 matrix where its diagonal is 1 and its tridiagonal excluding the main diagonal is (-1/2)
* b is a n-1x1 matrix where its first entry is (1/2); otherwise, 0

\*\* By the dimensionality of the vector p, matrix A must be size (n-1)x(n-1)\*\*

**step 2. Preparation for needs in Jacobi’s iteration**

* XO; initial value of x
* nx1 matrix, x; to store the results from iteration
* k; initial iteration / K; maximum iteration
* tol; limit criteria

**step 3. Jacobi’s iteration** (algorithm 7.1 in textbook pg.459)

1. while k does not reach the maximum number of iterations
2. over all entries in A..

* if the selected entries are not on main diagonal, conduct ∑ A(i,j)\*XO; let it denote sumIJI
* x(i) = [- sumIJI + b(i)]\*(1/A(i,i))

1. compute the stopping criterion; inf-norm of relative error

* If it is bigger than tol, then continue to stay in the loop
* If it is smaller than tol, then **stop**

Figure 1. approximation for n=80