**Problem:** The “divide and average” method, an old-time method for approximating the square root of any positive number *a*, can be formulated as

(2)

Write a well-structured function to implement this algorithm based on the algorithm outlined in Figure 3.3.

**Solution:** I created a Matlab function for this problem.

Here is my function call:

***>> Problem\_2(1,10,.01,200) “where x = 1, a = 10, error percent desired = .01, and max iterations = 200”***

Here is my answer:

***X = 3.162278 EA =0.005628 Iterations =5.000000***

Here is my code:

function Problem\_2(x,a,ed,maxit)

iter = 1;

xold = -1;

ea = 100;

while xold ~= x

xold = x;

x = (x+a/x)/2;

if x ~= 0

ea = abs((x-xold)/x)\*100;

if ea <= ed || iter >= maxit

fprintf('X = %f EA =%f Iterations =%f \n',x,ea,iter);

break;

end

end

iter = iter+1;

end

end