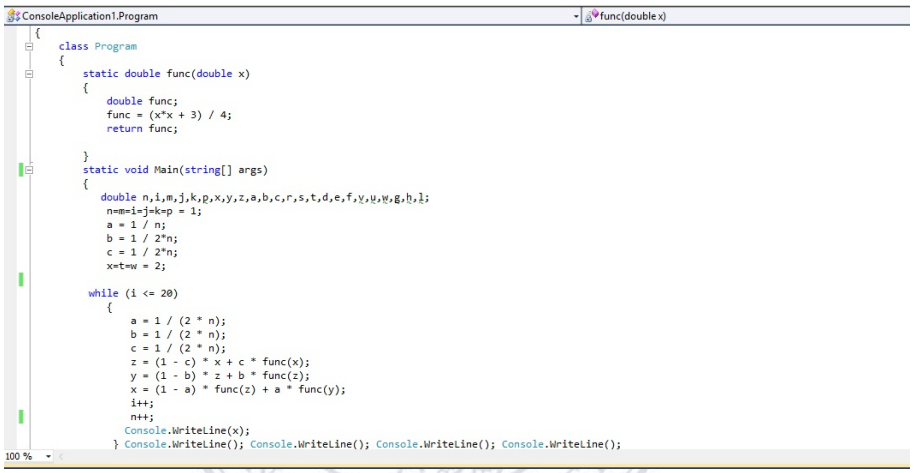
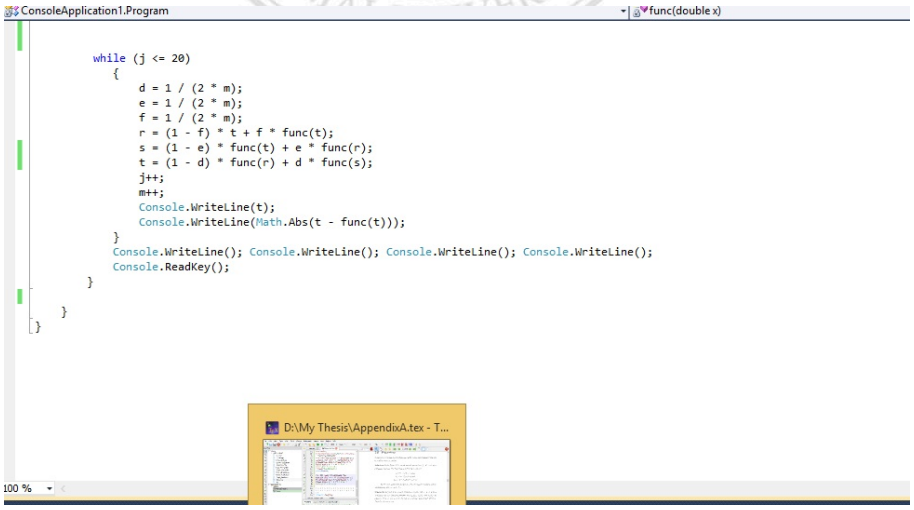
# APPENDIX A

## Microsolf Visual C

Microsolf Visual C is the program was used for compare the rate of convergece of P-iteration, W-iteration and ST-iteration. The example code of program are followwing:

i) The code of programm for compare the rate of convergence of P-iteration and W-iteration to a fixed point p = 1 of $f(x) = \frac{x^2+3}{4}$.




We can change the function from $f(x) = \frac{x^2+3}{4}$ to be $f(x) = \frac{x^2+9}{10}$ and $f(x) = sqrt(x+6)$ by change func on line 7.

ii) The code of programm for compare the rate of convergence of P-iteration and ST-iteration to a fixed point p = 1 of $f(x) = \frac{x^2+3}{4}$.

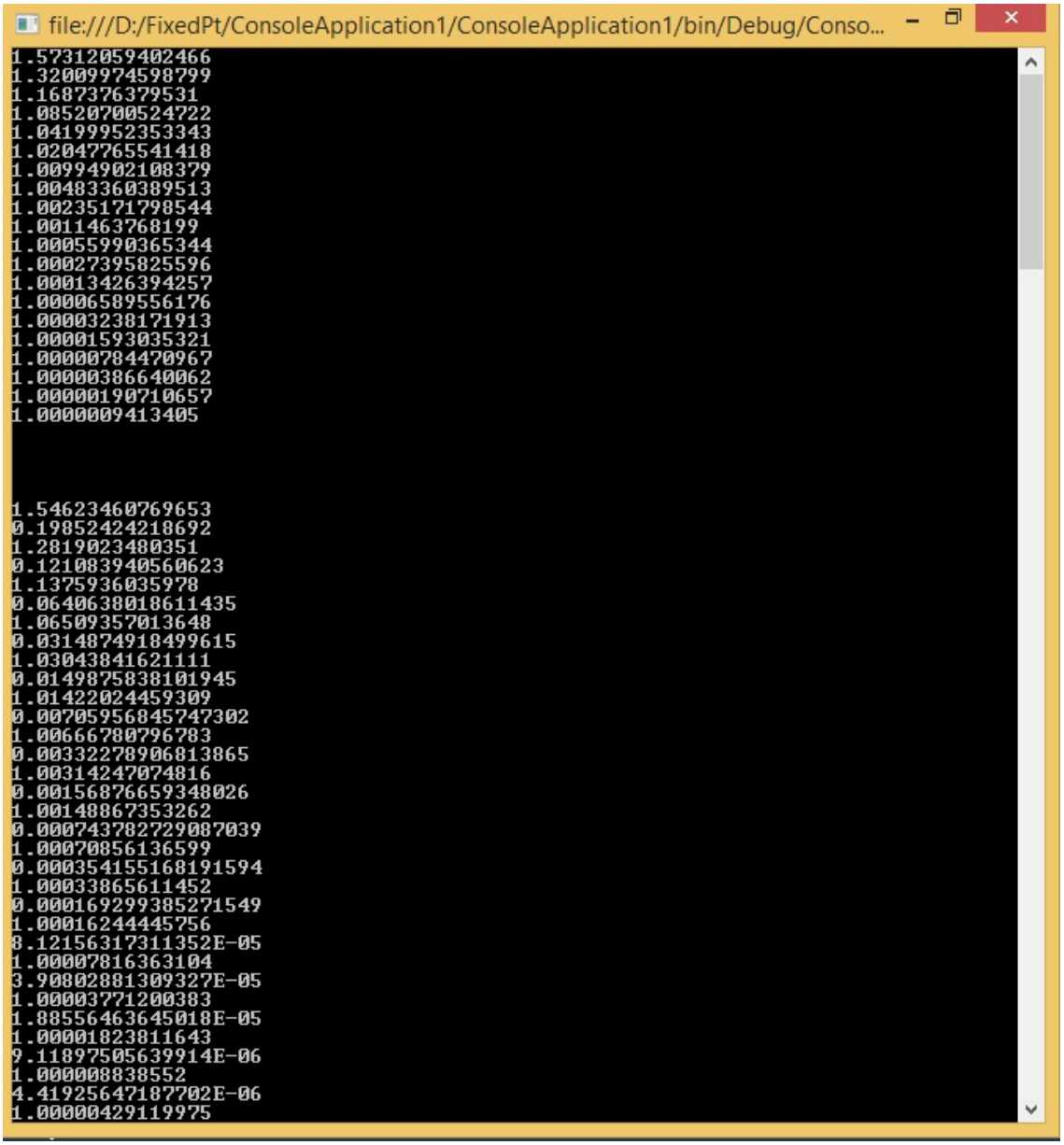



Figure A.1: The result of programm for compare the rate of convergence of P-iteration and W-iteration to a fixed point p = 1 of $f(x) = \frac{x^2+3}{4}$.

```
{
    class Program
    {
        static double func(double x)
        {
            double func;
            func = (x*x + 3) / 4;
            return func;

        }
        static void Main(string[] args)
        {
           double n,i,m,j,k,p,x,y,z,a,b,c,r,s,t,d,e,f,v,u,w,g,h,l;
            n=m=i=j=k=p = 1;
            a = 1 / n;
            b = 1 / 2*n;
            c = 1 / 2*n;
            x=t=w = 2;

         while (i <= 20)
            {
                a = 1 / (2 * n);
                b = 1 / (2 * n);
                c = 1 / (2 * n);
                z = (1 - c) * x + c * func(x);
                y = (1 - b) * z + b * func(z);
                x = (1 - a) * func(z) + a * func(y);
                i++;
                n++;
               Console.WriteLine(x);
             } Console.WriteLine(); Console.WriteLine(); Console.WriteLine(); Console.WriteLine();
```

100 %

```
         while (j <= 20)
            {
                d = 1 / (2 * m);
                e = 1 / (2 * m);
                f = 1 / (2 * m);
                r = (1 - f) * t + f * func(t);
                s = (1 - e) * func(t) + e * func(func(r));
                t = (1 - d) * func(r) + d * func(func(s));
                j++;
                m++;
                Console.WriteLine(t);
                Console.WriteLine(Math.Abs(t - func(t)));
            }
            Console.WriteLine(); Console.WriteLine(); Console.WriteLine(); Console.WriteLine();
            Console.ReadKey();
        }

    }
}
```

100 %

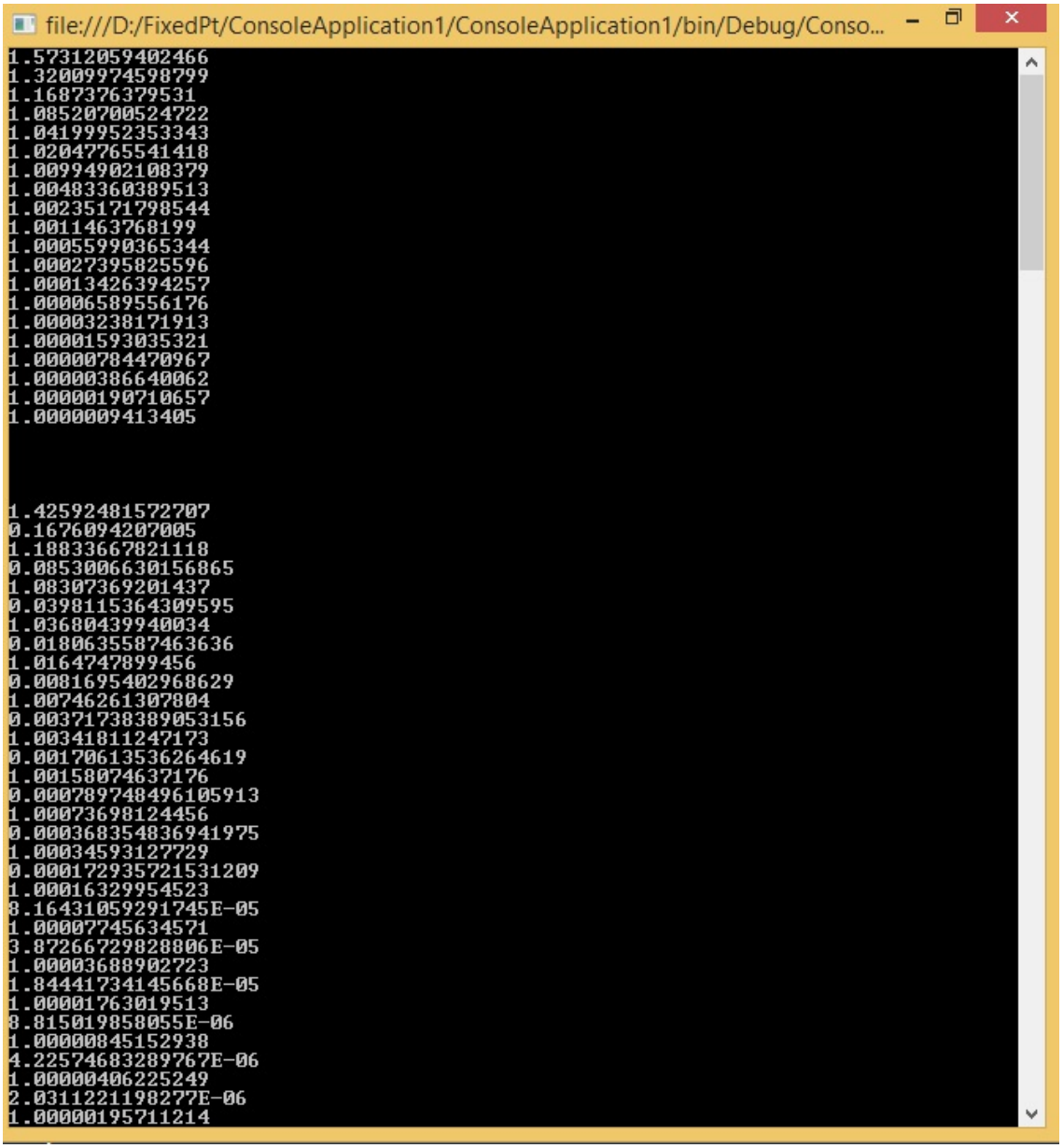



Figure A.2: The result of programm for compare the rate of convergence of ST-iteration and W-iteration to a fixed point p = 1 of $f(x) = \frac{x^2+3}{4}$.

# APPENDIX B

## Matlab

Programm Matlab was used for plot graphs of comparing the rate of convergece of P-iteration, W-iteration and ST-iteration. The example code of program are followwing:

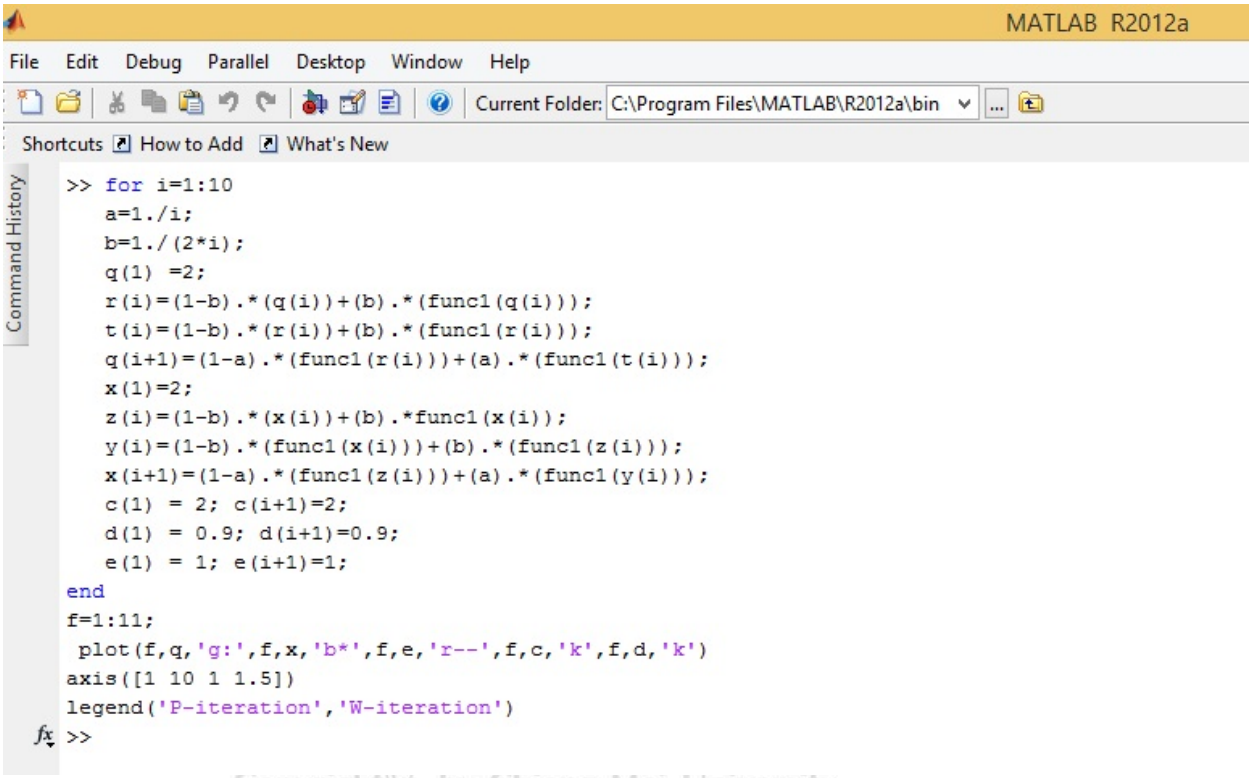





Figure B.1: To compare the rate of convergence between P-iteration and W-iteration to the fixed point p = 1 of $f(x) = \frac{x^2+3}{4}$.

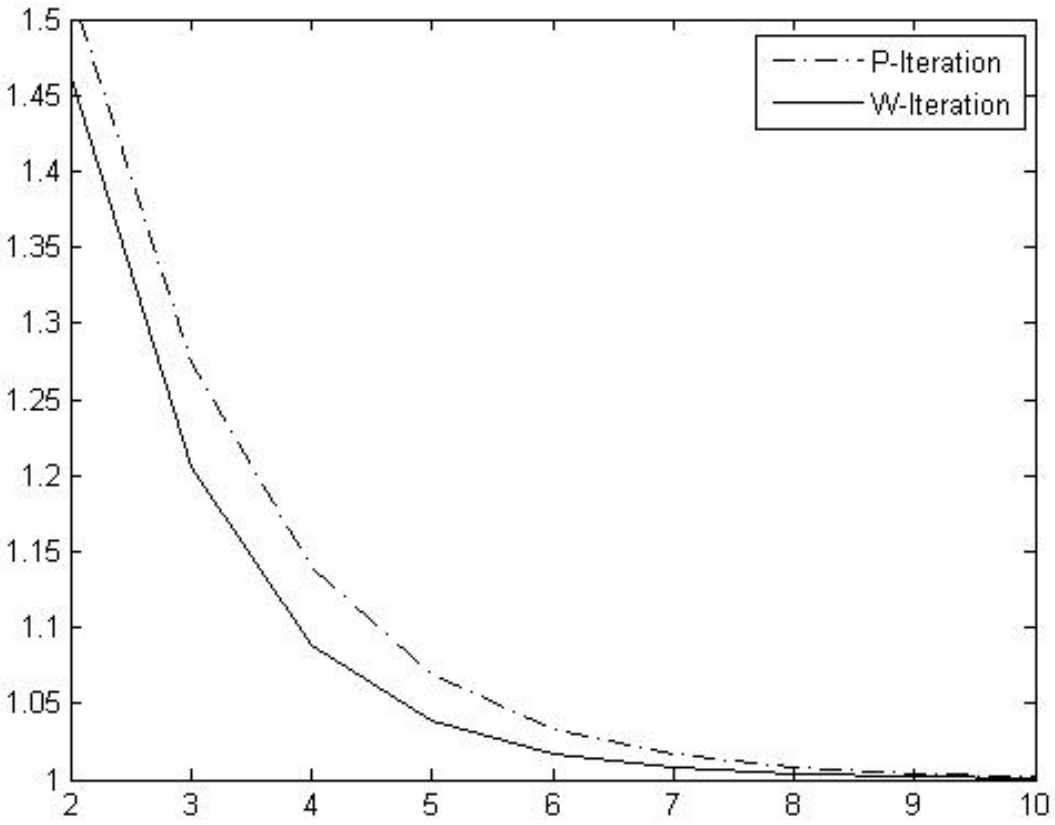



Figure B.2: The comparision graph of the convergence between P-iteration and W-iteration to the fixed point p = 1 of f.

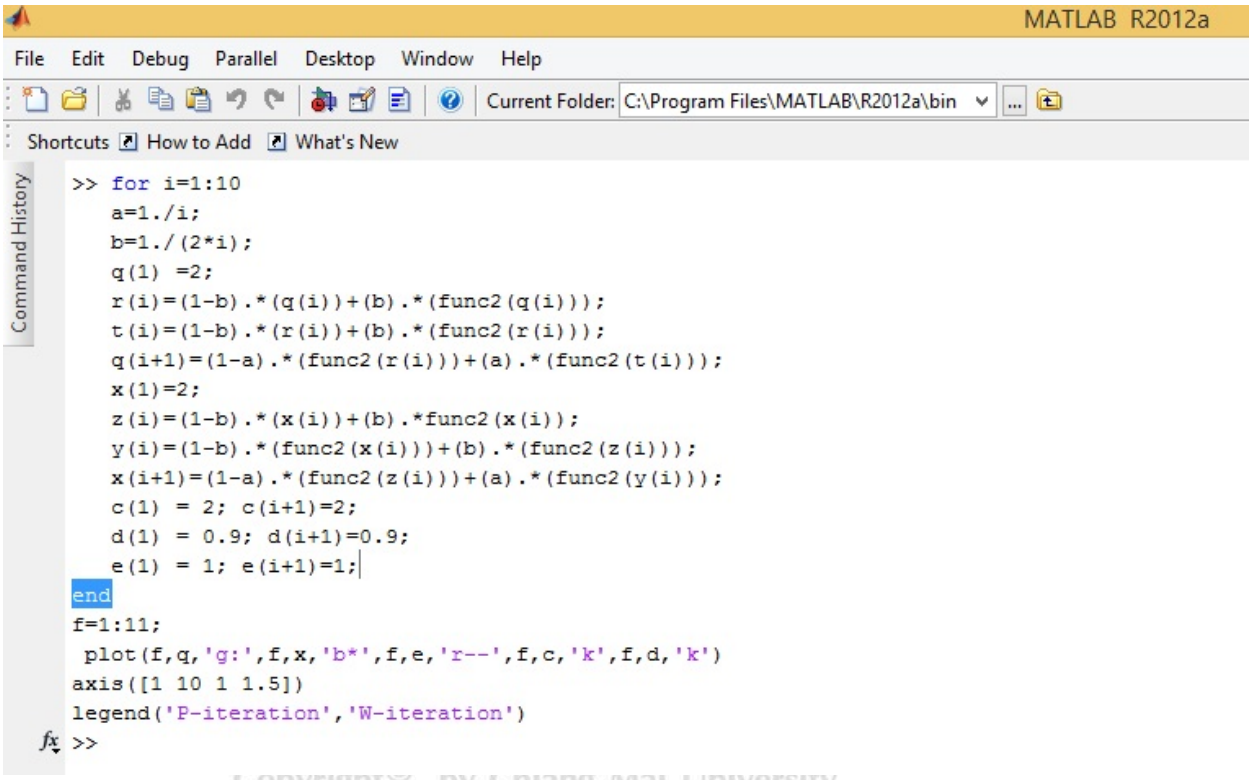





Figure B.3: To compare the rate of convergence between P-iteration and W-iteration to the fixed point p = 1 of $f(x) = \frac{x^2+9}{10}$.

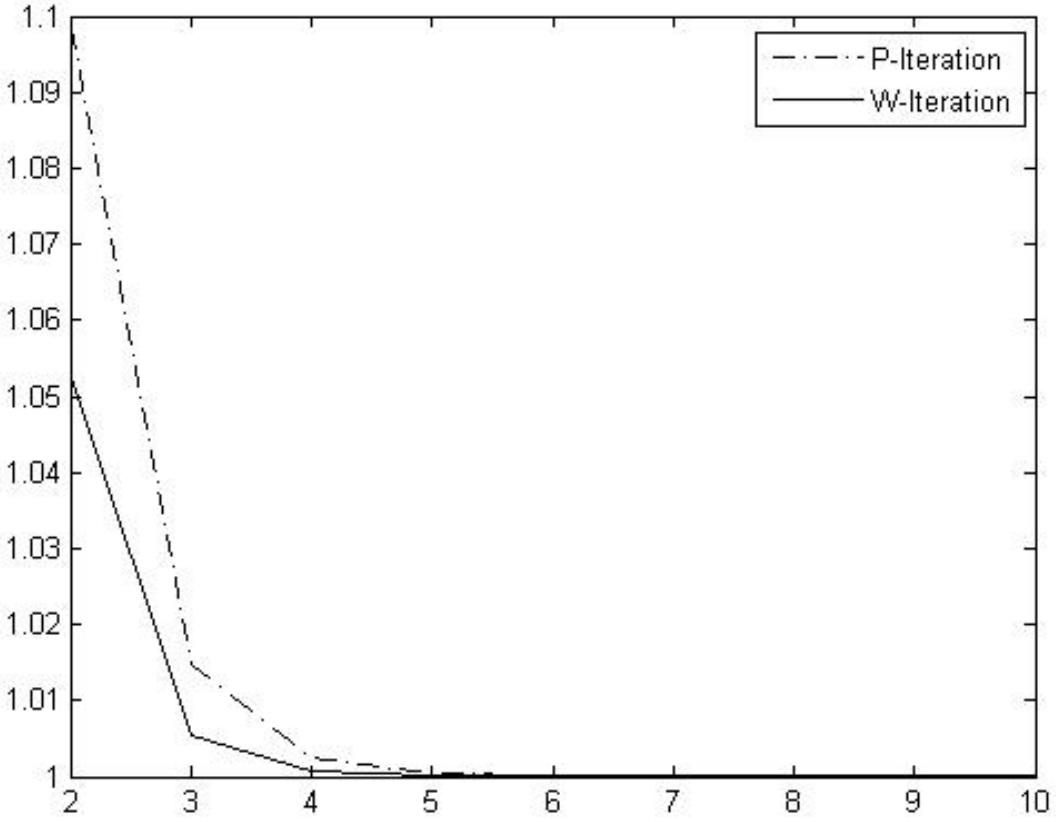



Figure B.4: The comparision graph of the convergence between P-iteration and W-iteration to the fixed point p = 1 of f.

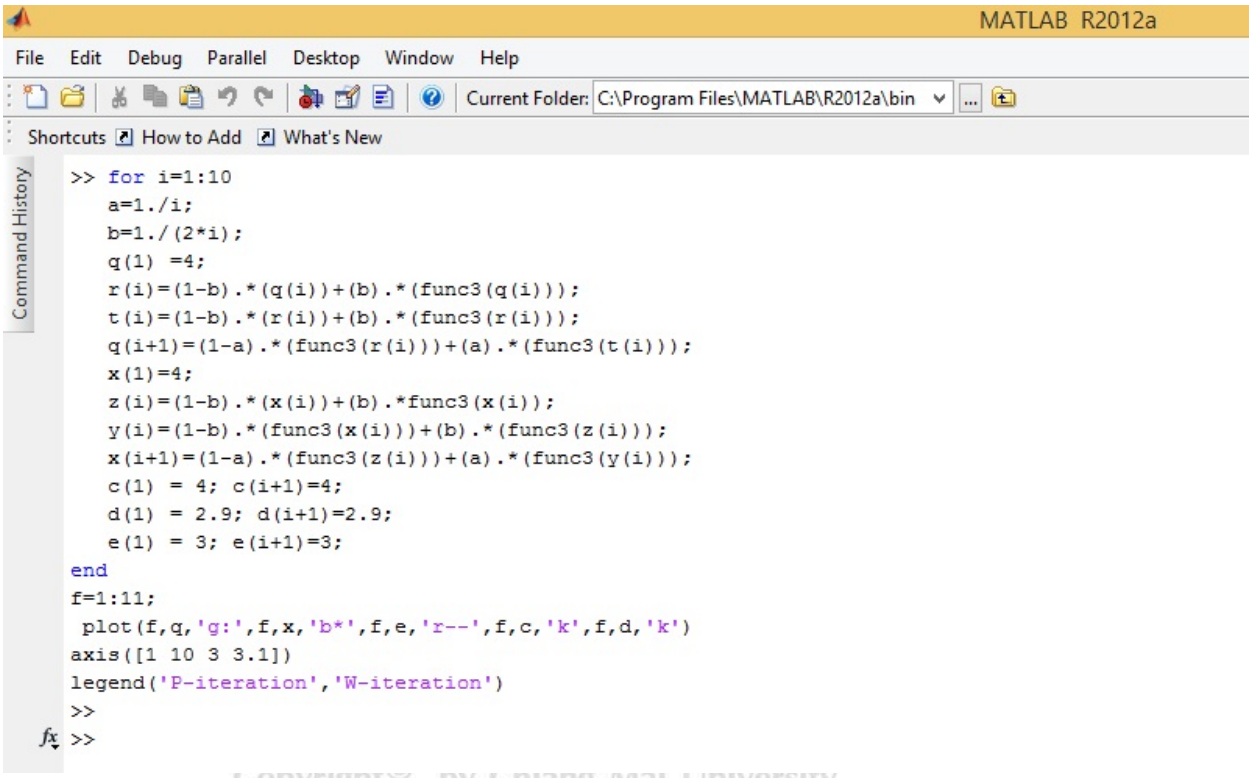





Figure B.5: To compare the rate of convergence between P-iteration and W-iteration to the fixed point p = 3 of $f(x) = \sqrt{x+6}$.

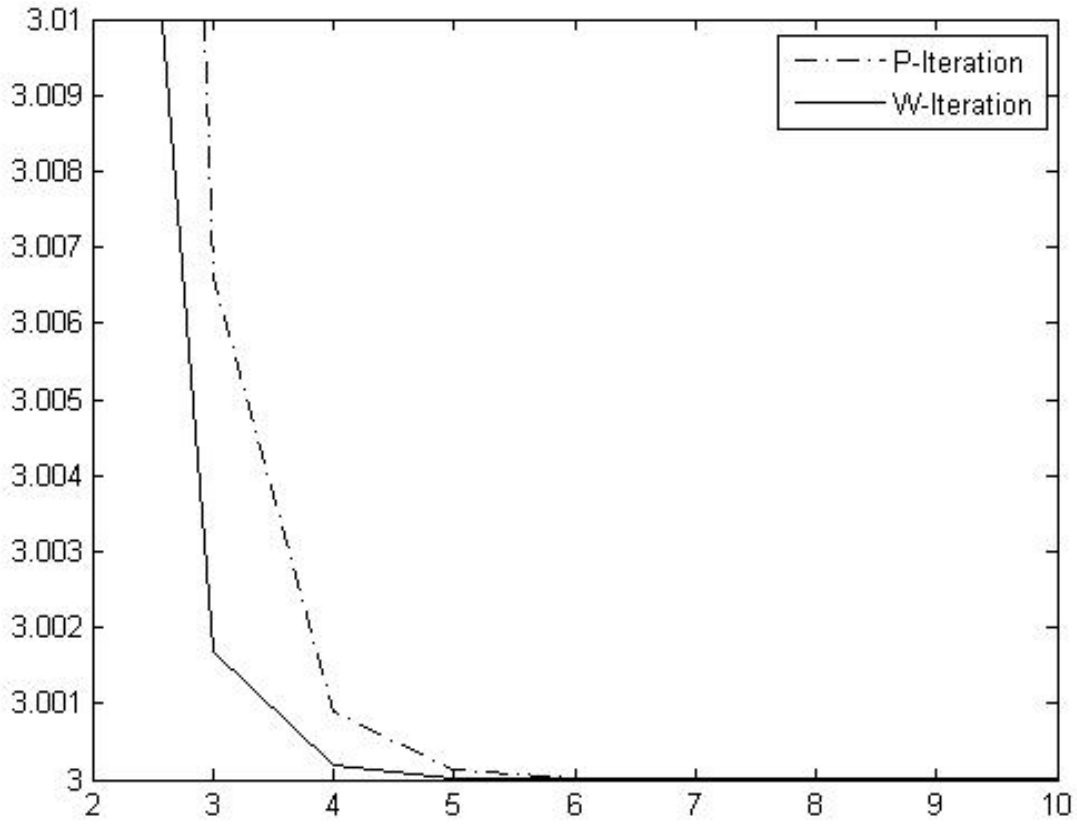



Figure B.6: The comparision graph of the convergence between P-iteration and W-iteration to the fixed point p = 3 of f.

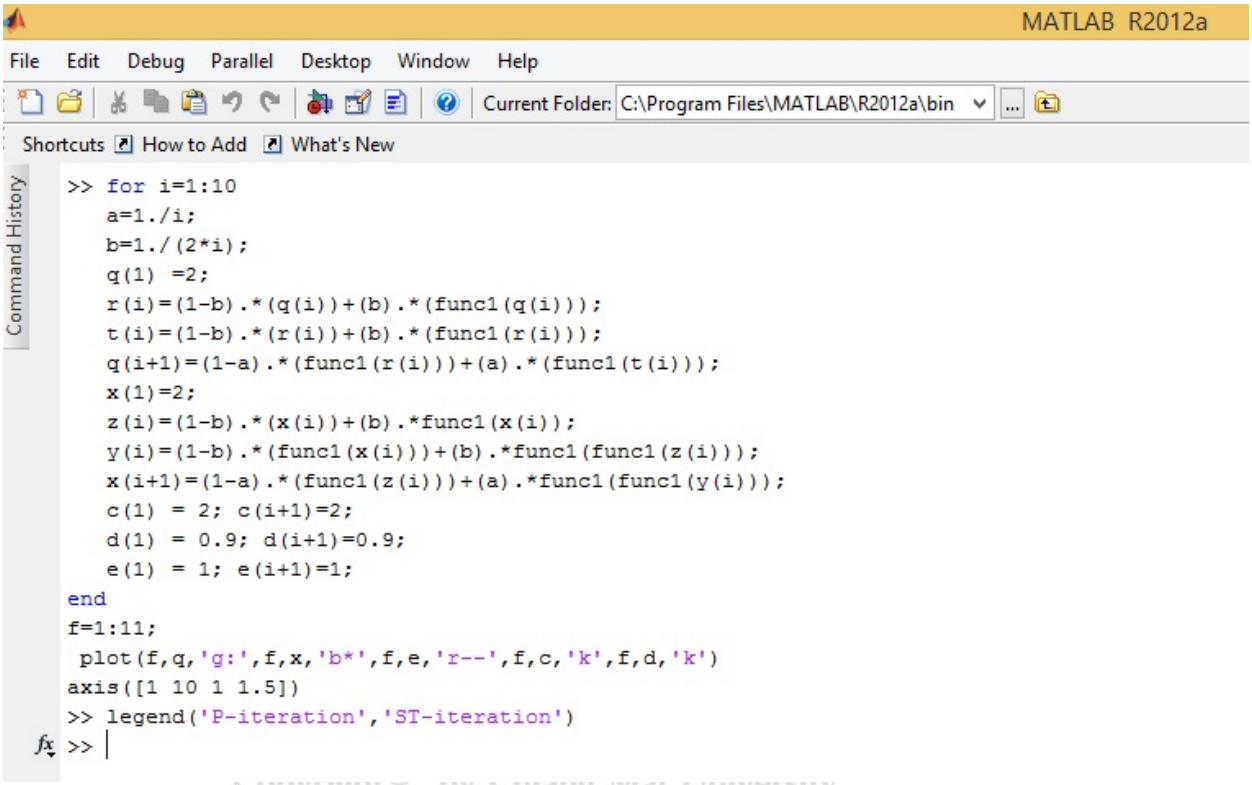





Figure B.7: To compare the rate of convergence between P-iteration and ST-iteration to the fixed point p = 1 of $f(x) = \frac{x^2+3}{4}$.

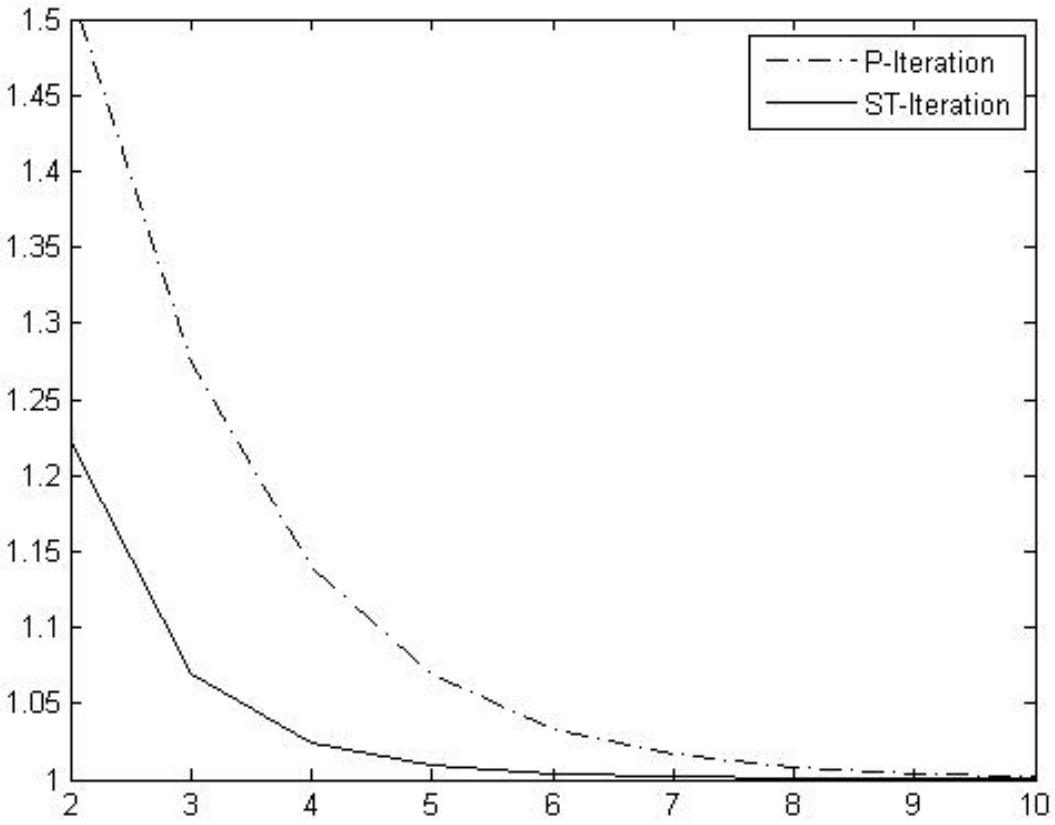



Figure B.8: The comparision graph of the convergence between P-iteration and ST-iteration to the fixed point p = 1 of f.

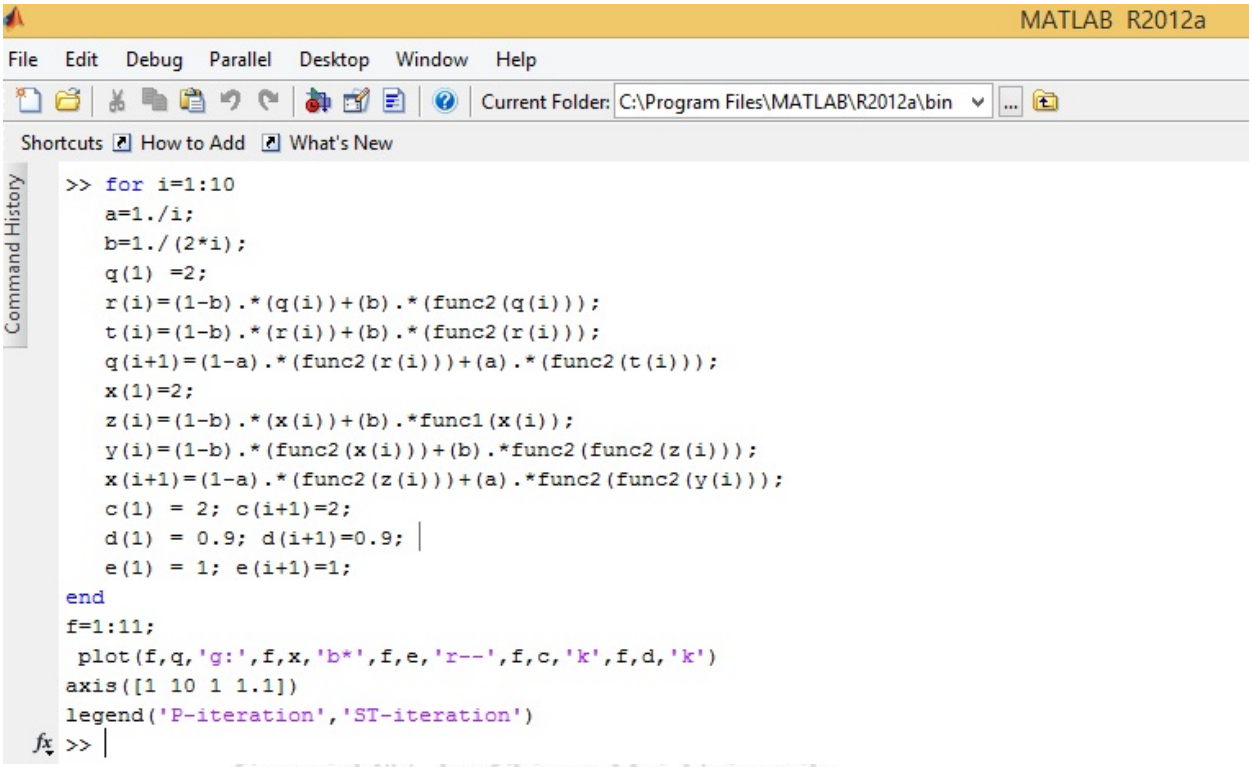





Figure B.9: To compare the rate of convergence between P-iteration and ST-iteration to the fixed point p = 1 of $f(x) = \frac{x^2+9}{10}$.

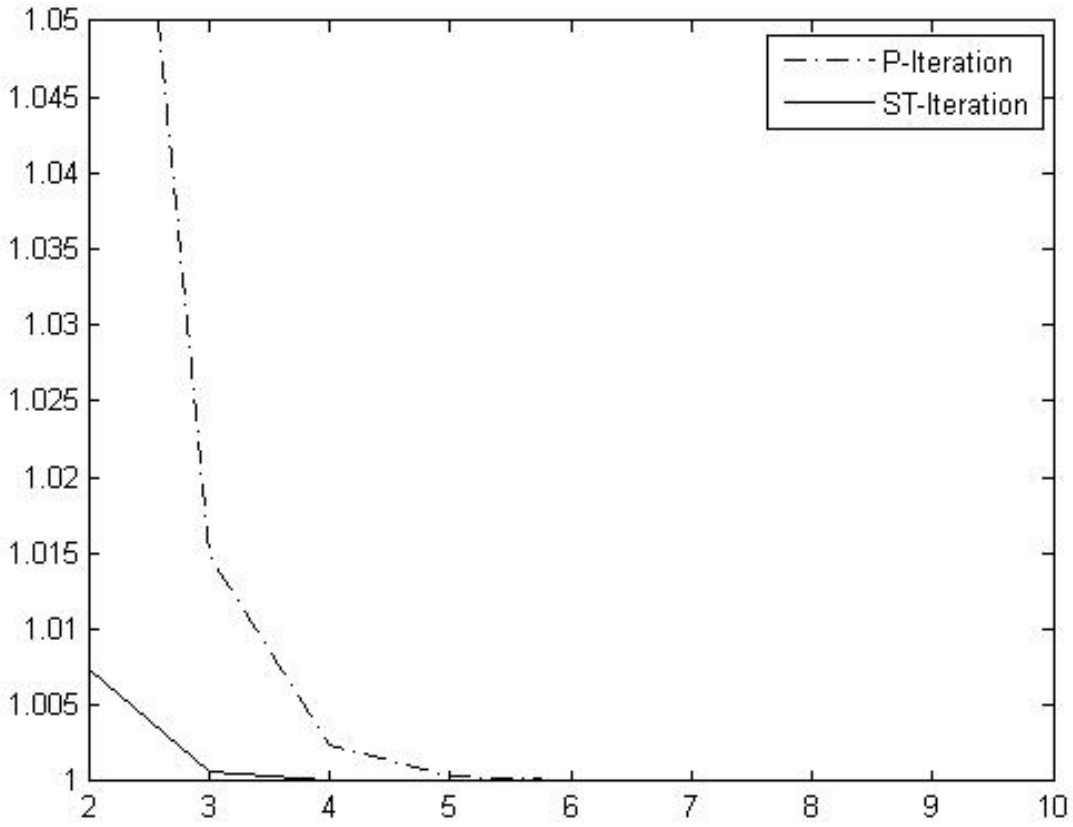



Figure B.10: The comparision graph of the convergence between P-iteration and ST-iteration to the fixed point p = 1 of f.

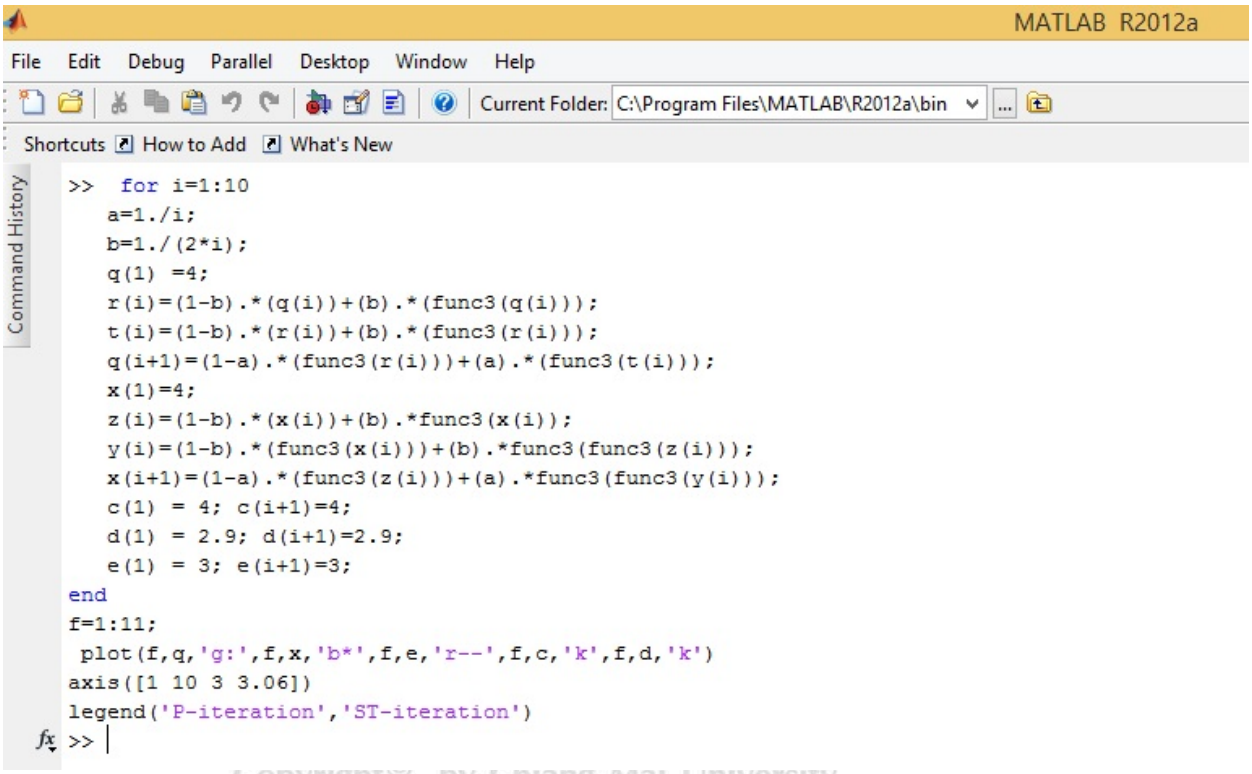





Figure B.11: To compare the rate of convergence between P-iteration and ST-iteration to the fixed point p = 3 of $f(x) = \sqrt{x+6}$.

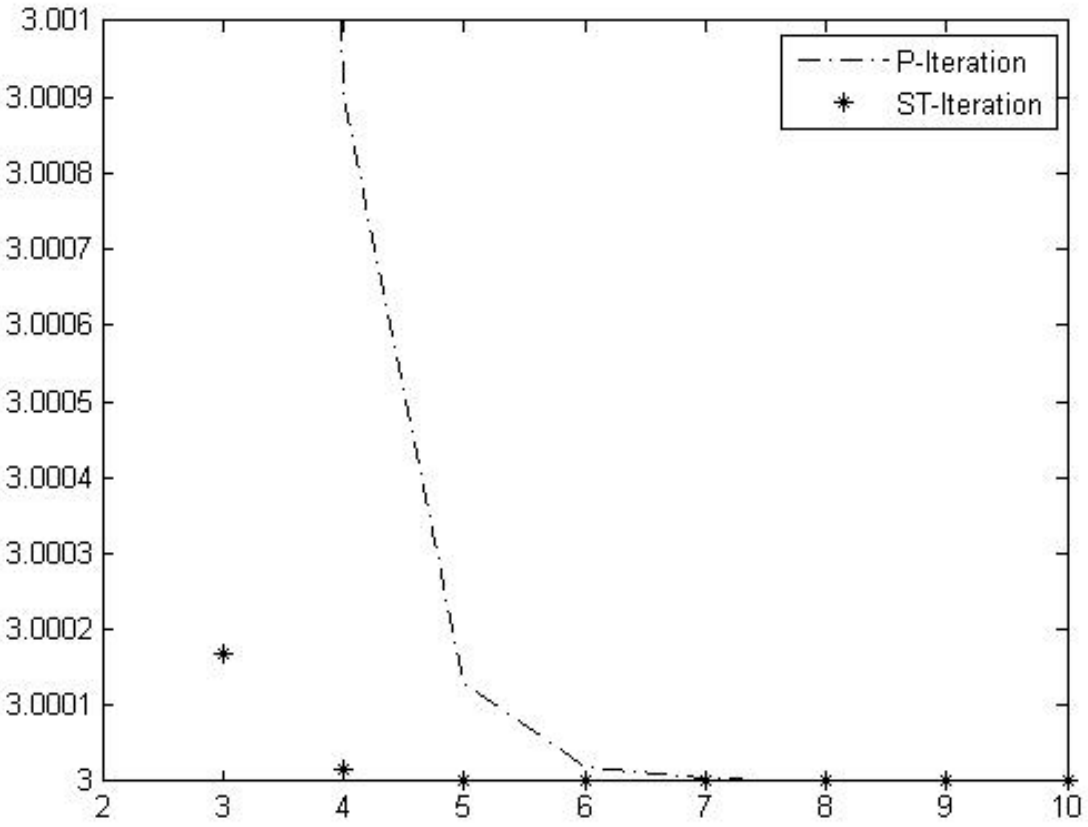



Figure B.12: The comparision graph of the convergence between P-iteration and ST-iteration to the fixed point p = 3 of f.

# CURRICULUM VITAE

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