```
>> f = @(x) 230*x^4 + 18*x^3 + 9*x^2 - 221*x -9

f =

  function_handle with value:

    @(x)230*x^4+18*x^3+9*x^2-221*x-9

>> tol = 10^-6

tol =

   1.0000e-06

>> max_iter = 1000

max_iter =

        1000

>> p0a = -1; p1a = 0; p0b = 0; p1b = 1;
>> format long
>> [p, iter] = falsePosition(f, p0a, p1a, tol, max_iter)

p =

  -0.040658499043342


iter =
```

```
    17

>> [p, iter] = falsePosition(f, p0b, p1b, tol, max_iter)

p =

   0.962398384238757


iter =

     9

>> [p, iter] = secant(f, p0b, p1b, tol, max_iter)

p =

  -0.040659288315572


iter =

    12

>> [p, iter] = secant(f, p0a, p1a, tol, max_iter)

p =

  -0.040659288315725
```

```
iter =

     5

>> [p, iter] = secant(f, p0b, p1b, tol, max_iter)

p =

  -0.040659288315572

iter =

    12


>> [p, iter] = newton(f, -0.5, tol, max_iter)

p =

  -0.040659288315759

iter =

     4
```

```
>> [p, iter] = newton(f, 0.5, tol, max_iter)

p =

  -0.040659288315759


iter =

     6
```

Problem 2.4.2.

```
>> tol = 10^-5

tol =

     9.999999999999999e-06

>> f = @(x) 1 - 4*x*cos(x) + 2*x^2 + cos(2*x)

f =

  function_handle with value:

    @(x)1-4*x*cos(x)+2*x^2+cos(2*x)

>> [p, iter] = newton(f, 0.5, tol, max_iter)

p =
```

```
   0.739078679138277


iter =

    15

>> f = @(x) x^2 + 6*x^5 + 9*x^4 - 2*x^3 - 6*x^2 + 1

f =

  function_handle with value:

    @(x)x^2+6*x^5+9*x^4-2*x^3-6*x^2+1

>> [p, iter] = newton(f, -2.5, tol, max_iter)

p =

  -1.334345940447260


iter =

     9

>> f = @(x) sin(3*x) + 3*exp(-2*x)*sin(x)-3*exp(-x)*sin(2*x)-exp(-3*x)

f =
```

```
  function_handle with value:

    @(x)sin(3*x)+3*exp(-2*x)*sin(x)-3*exp(-x)*sin(2*x)-exp(-3*x)

>> [p, iter] = newton(f, 3.5, tol, max_iter)

p =

   3.141567934398657


iter =

     5

>> f = @(x) exp(3*x)-27*x^6 + 27*x^4*exp(x) - 9*x^2*exp(2*x)

f =

  function_handle with value:

    @(x)exp(3*x)-27*x^6+27*x^4*exp(x)-9*x^2*exp(2*x)

>> [p, iter] = newton(f, 4, tol, max_iter)

p =

   3.733102841103420
```

```
iter =

    24

Problem 2.4.2.

>> f = @(x) 1 - 4*x*cos(x) + 2*x^2 + cos(2*x)

f =

  function_handle with value:

    @(x)1-4*x*cos(x)+2*x^2+cos(2*x)

>> [p, iter] = mod_newton(f, 0.5, tol, max_iter)

p =

   0.739085131072134


iter =

     4

>> f = @(x) x^2 + 6*x^5 + 9*x^4 - 2*x^3 - 6*x^2 + 1

f =
```

```
  function_handle with value:

    @(x)x^2+6*x^5+9*x^4-2*x^3-6*x^2+1

>> [p, iter] = mod_newton(f, -2.5, tol, max_iter)

p =

  -1.334345940447260


iter =

    80


>> f = @(x) sin(3*x) + 3*exp(-2*x)*sin(x)-3*exp(-x)*sin(2*x)-exp(-3*x)

f =

  function_handle with value:

    @(x)sin(3*x)+3*exp(-2*x)*sin(x)-3*exp(-x)*sin(2*x)-exp(-3*x)

>> [p, iter] = mod_newton(f, 3.5, tol, max_iter)

p =

   3.141567934398660
```

```
iter =

     5

>> f = @(x) exp(3*x)-27*x^6 + 27*x^4*exp(x) - 9*x^2*exp(2*x)

f =

  function_handle with value:

    @(x)exp(3*x)-27*x^6+27*x^4*exp(x)-9*x^2*exp(2*x)

>> [p, iter] = mod_newton(f, 4, tol, max_iter)

p =

   3.733067725639929


iter =

     4
```