```
>> [p,n] = newton(1.4,@func,@funcp, 1e-4)

p =

    2.6907


n =

    11

>> [p,n] = newton(-2.5,@func,@funcp, 1e-4)

p =

   -2.8794


n =

     5

>> [p,n] = newton(1,@func,@funcp, 1e-4)

p =

    0.7391


n =

     3

>> [p,n] = newton(1,@func,@funcp, 1e-4)

p =

    0.9643


n =

     4

>> [p,n] = cuberoot(1,1e-8)
f(1.0000000000000000000000000000000) = 1.0000000000000000000000000000000
f(0.66666666666666662959232512495) = 0.29629629629629627984854778331
f(0.44444444444444419772821674997) = 0.087791495198902599894630327526
f(0.29629629629629627984854778331) = 0.026012294873748918744293945338
```

```
f(0.19753086419753085323236518887) = 0.007707346629258937827089415151
f(0.13168724279835389290305158738 2) = 0.002283658260521166313838925532
f(0.08779149519890258601684251971 2) = 0.000676639484598863896226694781
f(0.05852766346593505503159704517 2) = 0.000200485773214478178423994525
f(0.03901844231062336770810006214 6) = 0.000059403192063549079362551331
f(0.02601229487374891180540004143 0) = 0.000017600945796607133747536597
f(0.01734152991583260555730205965 1) = 0.000005215095050846555951406906
f(0.01156101994388840370486803976 7) = 0.000001545213348398979596057885
f(0.00770734662925893522500420118 6) = 0.000000457840992118216074652074
f(0.00513823108617262290509497546 5) = 0.000000135656590257249150443310
f(0.00342548739078174860339665031 0) = 0.000000040194545261407153236001
f(0.00228365826052116546447718754 4) = 0.000000011909494892268782774005
f(0.00152243884034744363098479169 6) = 0.000000003528739227338898798841

p =

    0.0015


n =

    16

>> [p,n] = cuberoot(1,1e-8)
f(1.00000000000000000000000000000000) = -1.00000000000000000000000000000000
f(-1.33333333333333348136306995002 1) = -4.37037037037037112696680196 6773
f(-2.01388888888888883954564334999 3) = -10.16782675325788787290548498 2766
f(-1.83571982208129647062833100790 2) = -8.18613213647782878013003937 6672
f(-1.81730840091534862068556321901 3) = -8.00186057816891249672153207 9391
f(-1.81712061224032650486037709924 9) = -8.00000019225326397531716793 3099
f(-1.81712059283213966942582828778 5) = -8.00000000000000000000000000000000
f(-1.81712059283213944738122336275 4) = -7.99999999999999822364316059975 0

p =

   -1.8171


n =

     8

>> [p,n] = cuberoot(1,1e-8)
f(1.00000000000000000000000000000000) = -9.00000000000000000000000000000000
f(-9.33333333333333392545227980008 3) = -823.03703703703729388507781550 2882
f(-6.33701814058956891528850974282 2) = -264.48070020518809997156495228 4098
f(-4.47369639259383777840639595524 4) = -99.53637802793679156820871867 2395
f(-3.48211551981317102288926434994 2) = -52.22109810633151738556989585 0495
f(-3.14614387456254895880647382000 5) = -41.14122824739826000950415618 7177
```

```
f(-3.1077117760006283120333137048887) = -40.013884045577398751447617541999
f(-3.1072325798628908088971911638851) = -40.000002140751618640024389605969
f(-3.1072325059538603575504112086489) = -40.000000000000042632564145606011
f(-3.1072325059538585811935718083999) = -39.999999999999992894572642398998

p =

   -3.1072


n =

    10

>> %the last two converged to a point, just not the point we wanted
>> %this is because the rho at the intial point is greated than 1
>> % this means that for |a| > 1/6 it will not converge to the root
>> [p,n] = secant(1.4,1.5,@func, 1e-4)
p_ 1 = 13.509803921568600770797274890356
p_ 2 = 1.534998020104316296396973484661
p_ 3 = 1.569727300532171687663662851264
p_ 4 = 7.509128419748648752829467412084
p_ 5 = 1.685202500697030814080790150911
p_ 6 = 1.795385768328370046376107893593
p_ 7 = 4.455289377114051596606714156223
p_ 8 = 2.100144233019912931581529846881
p_ 9 = 2.322434428406609630002321864595
p_10 = 2.881130642613093151283010229236
p_11 = 2.649218237259198804878224109416
p_12 = 2.686518938327012051558995153755
p_13 = 2.690743947944255420878789664130
p_14 = 2.690647226886294429704094000044

p =

    2.6906


n =

    14

>> [p,n] = secant(-2.5,-2.6,@func, 1e-4)
p_ 1 = -3.004750593824229376593848428456
p_ 2 = -2.851082058555434617375112793525
p_ 3 = -2.876890304778253248940700359526
p_ 4 = -2.879438580510482736940502945799
p_ 5 = -2.879385142661845975453616119921
```

```
p =

   -2.8794


n =

     5

>> [p,n] = secant(1,1.1,@func, 1e-4)
p_ 1 = 0.753785502336544288581876571698
p_ 2 = 0.740040861995786669602637175558
p_ 3 = 0.739088210031642378616822952608

p =

    0.7391


n =

     3

>> [p,n] = secant(1,1.1,@func, 1e-4)
p_ 1 = 0.964791955983259952311925644608
p_ 2 = 0.964339747057871843338716644212

p =

    0.9643


n =

     2

>> %the first function was the only case where newton was faster
>> %oddly enough other methods took the same number or less iteration
>> %to complete. I most likely just got lucky with points I chose
>> % and this is not representative of the difference between these functions
>>
```