main.m

Contents

Part (a)

```
a = func([0.5, 1.7, 2.1, 4.5])
```

```
a =
    1.254561   -0.086897   -0.101042    0.079659
```

Part (b)

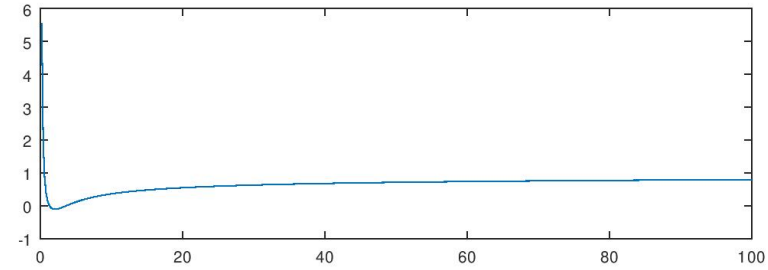
```
b = dfunc([0.5, 1.7, 2.1, 4.5])
```

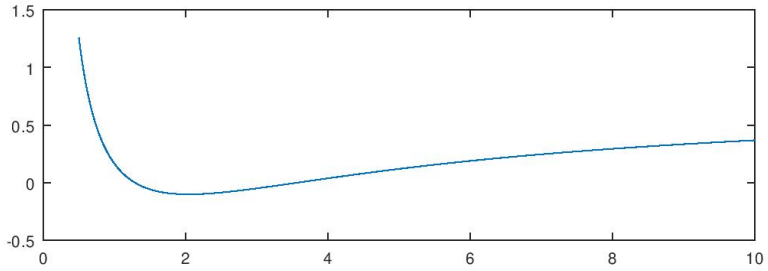
```
b =
   -5.006969   -0.095796    0.010568    0.082037
```

Part (c)

```
subplot(2, 1, 1)
xs = linspace(0, 100, 500);
plot(xs, func(xs))

subplot(2, 1, 2)
xs = linspace(1/2, 10, 500);
plot(xs, func(xs))
```





Part (d)

```
tol = 1e-6;
for i=1:10
  str = sprintf('Init. val: %d', i);
  disp(str)
  disp(newton(@func, @dfunc, i, tol));
end
```

```
Init. val: 1
 1.2866
Init. val: 2
No convergence
Init. val: 3
 3.5764
Init. val: 4
 3.5764
Init. val: 5
 3.5764
Init. val: 6
 3.5764
Init. val: 7
```

```
 3.5764
Init. val: 8
 1.2866
Init. val: 9
No convergence
Init. val: 10
No convergence
```