

0. Read sections 2.6, 2.7, 2.8, 11.1, and 11.2 in the book.
1. Page 65, #6.1
2. Page 66, # 6.4
3. Page 66, # 6.6
4. Page 74, # 7.1. For this problem, write a code to use Newton's method. You can write a function\* to do this. Here is an example of how a function might start:

```
1 function x = Newton(f,df,x0,tolerance,maxIter)
2 % A program to solve f(x) = 0 using Newton's method.
```

where `maxIter` is the maximum number of iterations you will allow, and `tolerance` is the maximum error between steps you will allow. Once you write the code, you can call it from the command line, as in the following example, which uses Newton's method with initial guess  $x_0 = 2$  to compute  $\sqrt{3}$  out to 15 decimal places. (Note that the derivative  $\frac{d}{dx}(x^2 - 3) = 2x$  has been computed by hand.)

```
>> format long g
>> x = Newton(@(x) x^2 - 3, @(x) 2*x, 2, 1e-15,1000)
```

(The first line makes Matlab display more decimal places; you only need to enter it once per session.) Include your answers for page 74, # 7.1, and also print your Newton code and staple it to your homework.

5. Page 362, # 2.3.

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\*See the Matlab Intro, Section 10, if you need a refresher on Matlab functions.