

## MATH 128A, SUMMER 2009: HOMEWORK 1

**Note:** The back of the book has answers to odd-numbered exercises. You're allowed to use these, but you must show your work to receive credit.

**1.1:** 1d, 4a, 10, 23

**1.2:** 6cd, 12, 16c, 25abc

**1.3:** 6, 8, 14a

**MATLAB-related:** Consider the following MATLAB session:

```
>> f=@(x) sqrt(x.^2+1)-x;  
>> g=@(x) 1/(sqrt(x^2+1)+x);  
>> f(1e7)
```

```
ans =
```

```
5.0291e-08
```

```
>> g(1e7)
```

```
ans =
```

```
5.0000e-08
```

- What do the semicolons above do? What does the `.*` mean?
- Show that the functions  $f$  and  $g$  defined above are algebraically equal.
- Which estimate is more accurate? Why?