Chapter 2 Homework:

12/6/2010

Q: Try out slides 2-8 and 14-17 using hugs (GHCI).

A: Done. Again no real proof.

Q: Fix the syntax errors in the program bellow and test your solution using HUGS (GHCI).

```
N = a 'div' length xs
        where
            a = 10
            xs = [1..5]
```

A: The errors were: No parenthesis around "length x", forward ticks rather than back ticks around "div" and a capital N.

```
n = a `div` (length x)
    where
        a = 10
        xs = [1..5]
```

Q: Show how the library function "last" can be defined using the functions introduced in this lecture.

A: The easiest way that I can think of defining last (explicit recursion)

```
mylast (x:[]) = x
mylast (x:xs) = mylast xs
```

Q: Can you think of another possible definition?

A: This is the definition I could explain to a four year old:

```
myflatten (x:_) = x
smylast (xs) = myflatten (drop ((length xs) - 1) xs)
```

Q: Similarly can you show how the library function "init" (that removes the last element of a list) can be defined two different ways?

A: Explicit recursion version of init:

```
myinit (x:[]) = []
myinit (x:xs) = x: myinit xs
```

Other version of init:

```
smyinit xs = take ((length xs) - 1) xs
```

Q: Parenthesize the following arithmetic expressions:

1. $2^3 * 4$
2. $2 * 3 + 4 * 5$
3. $2 + 3 * 4^5$

My assumption is to parenthesize to make PEMDAS explicit.

A:

1. $(2^3) * 4$
2. $(2 * 3) + (4 * 5)$
3. $2 + (3 * (4^5))$

Q: Work through examples from this chapter using HUGS (substitute GHCI).

A: Done. Again no way of substantiation.