Homework 0

Due on Wednesday, September 7

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1. Basic Text Typewriting

- Item 1
- Item 2
- Item 3
- Subscripting: $\text{Black}_{\text{pit}}$; $\text{Blue}^{\text{angel}}$

These are **boldfaced words**. Newly introduced notions will be emphasized in italic font such as *group theory*. We could also add boldface to it, e.g., ***group theory***.

Mathematics can be in-line like $E = mc^2$. Or, they can be elegantly presented in standalone blocks like below:

$$e = \lim_{n\to\infty}(1+\frac{1}{n})^n \tag{1}$$

The above theorem can be referenced as equation (1). We may prove it as a theorem.

Theorem 1. (*Euler's Theorem*)
If n and a are positive integers and $\gcd(n,\ a) = 1$, then

$$a^{\phi(n)} \equiv 1 \mod n \tag{2}$$

2. Basics of Typesetting Code

Below is a snippet of JavaScript code

```
function hello(){
  return "Hello World!"
}
```

Here is the Java code we mentioned in the first lecture:

```
int total = 0;
for (int i = 1; i <= 10; 1++){
  total = total + i;
}
```

And typing in Haskell is as easy:

```
f :: [Int] -> [Int]
f[]       = []
f (x:xs) = f ys ++ [x] ++ f zs
  where ys = [a | a xs, a x]
  zs = [b | b xs, b > x]
```

3. Practice Save and Load

4. More Reading

One of my favorite features we didn't mention in class is the ability to add a photo; it seems really useful and looks really easy to do. Another of my favorite is the ability to make tables/figures. Specifically the ability to make a matrix.

5. Hands-on

I like the way that Haskell has the ability to drop a certain amount of indices from a list with a simple command versus having to use a loop. Additionally, I like that it can easily sum a large range of numbers without the pain of creating a for loop.