Matlab notes for math 160 Homework 7

Notice how the taylor command gives a degree one less than what you ask for. In the following example, I am asking for the taylor polynomial of degree 11 (not 12!) of ln(x+1) expanded about a = 0. That is because they think the zero degree polynomial is the first taylor polynomial contrary to our convention that calls it the zero taylor polynomial.

```
syms x
t(x) = taylor(log(x+1), x, 'Order', 12)
```

```
t(x) =
```

$$\frac{x^{11}}{11}-\frac{x^{10}}{10}+\frac{x^9}{9}-\frac{x^8}{8}+\frac{x^7}{7}-\frac{x^6}{6}+\frac{x^5}{5}-\frac{x^4}{4}+\frac{x^3}{3}-\frac{x^2}{2}+x$$

```
vpa(t(-0.5),10)
```

```
ans = -0.6931092454
```

t(-0.5) estimates ln(1+(-0.5))=ln(0.5).

```
vpa(log(0.5),4)
```

```
ans = -0.6931
```

```
vpa(abs(t(-0.5)-log(0.5)),4)
```

```
ans = 3.794 10^-5
```