## Known Maclaurin Series

Have these series memorized and know when to use them.

1. 
$$\frac{1}{1-x} = \sum_{n=0}^{\infty} x^n$$
, with radius of convergence  $R = 1$ 

2. 
$$e^x = \sum_{n=0}^{\infty} \frac{x^n}{n!}$$
, with radius of convergence  $R = \infty$ 

3. 
$$\cos x = \sum_{n=0}^{\infty} \frac{(-1)^n x^{2n}}{(2n)!}$$
, with radius of convergence  $R = \infty$ 

4. 
$$\sin x = \sum_{n=0}^{\infty} \frac{(-1)^n x^{2n+1}}{(2n+1)!}$$
, with radius of convergence  $R = \infty$ 

5. 
$$\arctan x = \sum_{n=0}^{\infty} \frac{(-1)^n x^{2n+1}}{2n+1}$$
, with radius of convergence  $R = 1$