

## Homework problem due Friday April 2

1) Use the fact that

$$\sinh x = \frac{1}{2}(e^x - e^{-x})$$
$$\cosh x = \frac{1}{2}(e^x + e^{-x})$$

to find the Taylor series for  $\sinh x$  and  $\cosh x$  (by adding/subtracting the series for  $e^x$  and  $e^{-x}$ ).

2) Use the fact that  $i^2 = -1$  to compute the series for

$$\frac{-i}{2}(e^{ix} - e^{-ix})$$

and

$$\frac{1}{2}(e^{ix} + e^{-ix}).$$

Which Taylor series that you already know are these the same as?