



4. What is the Taylor series generated by  $\cos x$  about 0?

5. What is the Taylor series generated by  $e^x$  about 0?

6. We hope that, by using “polynomials of infinite degree,” we end up with something that is not just an approximation for our function but is actually equal to the function. We don’t really know if this is true yet. Taking on faith that  $e^x$  is actually equal to its Taylor expansion about 0, can you write a power series expansion (or “infinite polynomial representation”) of:

(a)  $e^{-x^2}$ ?

(b)  $\int e^{-x^2} dx$ ?

7. (a) Write a general formula for the Taylor series of  $f(x)$  centered at 0.

(b) What if you wanted to center at 5?