

MA 2733

Worksheet 8 – October 15, 2014

Name _____

1. Find a power series representation around 0 for $f(x) = \cos x$ in two different ways.

(a) Using Taylor's Theorem (similarly to how we found one for $\sin x$).

(b) Using power series operations, starting with the series for $\sin x$.

2. Find a power series representation around 0 for $f(x) = \frac{\sin x^2}{x^2}$.
Hint: first find a power series representation for $\sin x^2$. What is the first term of this series?

3. Let $f(x)$ be an antiderivative of $\cos x^2$ with $f(0) = 2$. Find a power series representation for $f(x)$.

4. Find the Taylor series (centered at 0) for $\frac{8x + 4}{x^2 - 4}$.