

MA 2733

Worksheet 1 – August 23, 2013

Name _____

1. Calculate the following derivatives:

(a) $\frac{d}{dx} e^{x \sin x^2}$.

(b) $\frac{d}{dx} e^{x \sin^2 x}$.

2. Calculate the following integrals:

(a) $\int x e^{x^2} dx$

(b) $\int x e^x dx$

(c) $\int_0^2 x^2 e^{x^3} dx$

(d) (Harder) $\int x^3 e^{x^2} dx$

3. (a) What curve is represented by the parametric equation $x = 2 \cos \theta$, $y = 3 \sin \theta$ for θ on $[0, 2\pi)$?

(b) Find the equation of the tangent line to the above parametric curve at $\theta = \pi/2$, $\theta = \pi/3$, $\theta = \pi/4$, and $\theta = 0$.