

Math 114 HW 4

due Tuesday, 6/7

1. Compute the first order partial derivatives (i.e. $\frac{\partial}{\partial x}$, $\frac{\partial}{\partial y}$ and $\frac{\partial}{\partial z}$) of the following functions :

(a) $f(x, y, z) = 3y \sin x + x^5 y^3 + z$

(b) $g(x, y, z) = \frac{x}{z} + 7e^{xyz} + \ln(x + y^2 z)$

2. Compute the second order partial derivatives (i.e. $\frac{\partial^2}{\partial x^2}$, $\frac{\partial^2}{\partial y^2}$, $\frac{\partial^2}{\partial x \partial y}$ and $\frac{\partial^2}{\partial y \partial x}$) of the following functions :

(a) $f(x, y) = xy^4$

(b) $f(x, y) = xy + \sin(x + y)$