

MATH 251: Practice 8

June 8, 2015

Name: Solutions

1. Compute $\frac{\partial f}{\partial x}$, $\frac{\partial f}{\partial y}$, $\frac{\partial f}{\partial z}$ for

$$f(x, y, z) = e^{xy} + 2xz^2 + \sin(yz)$$

$$\frac{\partial f}{\partial x} = ye^{xy} + 2z^2$$

$$\frac{\partial f}{\partial y} = xe^{xy} + z \cos(yz)$$

$$\frac{\partial f}{\partial z} = 4xz + y \cos(yz)$$

2. Find g_{xyz} for the function

$$g(x, y, z) = x^2z + 4x^3y^2z^3 + \sin\left(\frac{2x+1}{y^2}\right) + 3z$$

$$g_z = x^2 + 12x^3y^2z^2 + 3$$

$$g_{zy} = g_{yz} = 24x^3yz^2$$

$$g_{zyx} = 72x^2yz^2$$

$$g_{zyxx} = 144xyz^2$$