

Math 2110Q Worksheet 15
November 4, 2019

1. Let $\mathcal{D} = \{(x, y) \mid 0 \leq x \leq 1, -x \leq y \leq 2x\}$. Use the transformation $u = x + y, v = 2x - y$ to calculate

$$\iint_{\mathcal{D}} 2(x+y)(2x-y-3) dA. \quad (6 \text{ pts.})$$

2. Describe the circle of intersection of the spheres $x^2 + y^2 + z^2 = 16$ and $x^2 + y^2 + (z - 3)^2 = 4$ using spherical coordinates. So, information must be provided for the values taken on by all three spherical coordinates. You may express answers using inverse trigonometric functions where needed. (4 pts.)