MA1311 (Advanced Calculus) Tutorial sheet 11 [December 15 – 16, 2010]

Name:

Student ID:

1. For $R = [2,3] \times [-1,1]$ (the rectangle $\{(x,y) \in \mathbb{R}^2 : 2 \le x \le 3, -1 \le y \le 1\}$) and $f(x,y) = \cos\left(\frac{\pi}{2}x\right) + \sin\left(\frac{\pi}{3}y\right)$, find $\iint_R f(x,y) \, dx \, dy$

2. Find and graph the region R in \mathbb{R}^2 so that the interated integral

$$\int_{y=0}^{2} \int_{x=0}^{x=\sqrt{9-y^2}} f(x,y) \, dx \, dy = \iint_{R} f(x,y) \, dx \, dy$$

3. Find $\iint_R x^3 + y^2 dx dy$ when R is the region in the plane bounded by the y-axis and the lines y = 2x, y = x + 1.

Please hand in your work at the end of your tutorial.

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