



ID number:

December 6, 2015

Section:

Quiz 9 (25 min)

Exercise 1: (3 points)

Change the cartesian integral into an equivalent polar integral then evaluate the polar integral

a) $\int_1^{\sqrt{3}} \int_1^x dy dx$

b) $\int_{-1}^0 \int_{-\sqrt{1-x^2}}^0 \frac{2}{1+\sqrt{x^2+y^2}} dy dx$

Exercise 2: (3 points)

Sketch the region of integration and convert each polar integral or sum of integrals to a cartesian integral or sum of integrals. Do not evaluate the integral

$$\int_{\frac{\pi}{6}}^{\frac{\pi}{2}} \int_1^{\csc(\theta)} r^2 \cos(\theta) dr d\theta$$

Exercise 3: (4 points)

Find the average height of the single cone $z = \sqrt{x^2 + y^2}$ above the disc $x^2 + y^2 \leq a^2$ in the xy-plane.