

QUIZ 9

(30MINS, 40PTS)

Please write down your name, SID, and solutions discernably.

Name :

SID :

Score :

1. (10pts) Evaluate the double integral,

$$\iint_D (x^2 + 2y) dA$$

where D is bounded by $y = x$, $y = x^3$, $x \geq 0$.

2. (10pts) Sketch the region of integration and change the order of integration.

$$\int_0^2 \int_{x^2}^4 f(x, y) dy dx$$

3. (10pts) Evaluate the given integral by changing to polar coordinates,

$$\iint_R \frac{x^2 - y^2}{x^2 + y^2} dA$$

where R is the region that lies between the circles $x^2 + y^2 = a^2$ and $x^2 + y^2 = b^2$ with $0 < a < b$.

4. (10pts) Evaluate $\iiint_E x e^{x^2+y^2+z^2} dV$, where E is the portion of the unit ball $x^2 + y^2 + z^2 \leq 1$ that lies in the first octant.