Quiz 5

May 26, 2016

1. Rewrite $\displaystyle\int_{-1}^{1}\int_{x^2}^{1}\int_{0}^{1-y} dzdydx$ in the order $dydzdx$ and $dxdydz$, respectively. Need not evaluate it.

2. Let D be the region bounded below by $z = 0$, above by $x^2 + y^2 + z^2 = 4$ and the sides by $x^2 + y^2 = 1$. Express the volume of D in terms of $dzdrd\theta$ and $d\rho d\phi d\theta$, respectively. Need not evaluate it.

3. Evaluate $\displaystyle\int\int_{R}\sqrt{\frac{y}{x}} + \sqrt{xy}\,dxdy$ where R is the region bounded by $xy = 1, xy = 4, y = x$ and $y = 3x$ in the first quadrant.

4. Evaluate $\displaystyle\int_{C}\frac{x^2}{y^{\frac{4}{3}}}ds$ where $x(t) = t^2$, $y(t) = t^3$, $1 \le t \le 2$

5. Evaluate $\displaystyle\int_{C} F \cdot T ds$ where $F = (x^2, -y)$ and C is the curve $x = y^2$ from $(4, 2)$ to $(1, -1)$.