

Homework questions for sections 16.1, 16.2, 16.3

Math 114, Spring 2008

1. Evaluate the iterated integral,

$$\int_0^1 \int_{\sqrt{x}}^1 3y^3 \sin(xy) \, dy \, dx.$$

- A) $\sqrt{3}$ B) 3 C) $1 - \sqrt{x}$ D) $\pi/2$ E) $1 - \sin 1$ F) $3 \sin 1$

2. Evaluate the double integral

$$\int \int_R (2-x)^2 y \, dA$$

for the region

$$R = \{(x, y) \mid x + y \leq 2, x \geq 0, y \geq 0\}.$$

- A) 4 B) 8 C) 16 D) $\frac{4}{5}$ E) $\frac{8}{5}$ F) $\frac{16}{5}$

3. Find the volume of the region under the elliptic paraboloid $x^2 + 4y^2 + z = 4$ bounded by the xy -plane.

- A) π B) 2π C) 3π D) 4π E) 5π F) 6π