

WORKSHEET 7 - DUE 11/2

MATH 2110Q – Fall 2015
Professor Hohn

You must show all of your work for full credit. Please circle/box your answers or write a brief sentence indicating your answer.

1. Your favorite visitor from planet Zorg returns and tells you that the following equalities are all true. Should you believe the visitor? Why or why not?

(a)

$$\int_{-1}^2 \int_0^6 x^2 \sin(x - y) dx dy = \int_0^6 \int_{-1}^2 x^2 \sin(x - y) dx dy$$

(b)

$$\int_0^1 \int_0^x \sqrt{x + y^2} dy dx = \int_0^x \int_0^1 \sqrt{x + y^2} dx dy$$

(c)

$$\int_1^2 \int_3^4 x^2 e^y dy dx = \int_1^2 x^2 dx \int_3^4 e^y dy$$

2. Find the volume of the solid enclosed by the paraboloid $z = x^2 + 3y^2$ and the planes $x = 0$, $y = 1$, $y = x$, $z = 0$.

3. Evaluate the integral

$$\int_0^4 \int_{\sqrt{x}}^2 \frac{1}{y^3 + 1} dy dx$$

4. In evaluating a double integral over a region D , a sum of integrals was obtained as follows:

$$\iint_D f(x, y) dA = \int_0^1 \int_0^{2y} f(x, y) dx dy + \int_1^3 \int_0^{3-y} f(x, y) dx dy.$$

Sketch the region D and express the double integral as an integral with reversed order of integration.