

MA 213 Worksheet #16

Sections 15.1 and 15.2

10/23/18

- 1 15.1.9 Evaluate the double integral by first identifying it as the volume of a solid.

$$\iint_R \sqrt{2} dA, \quad R = \{(x, y) \mid 2 \leq x \leq 6, -1 \leq y \leq 5\}.$$

- 2 Calculate the iterated integral.

(a) 15.1.15 $\int_1^4 \int_0^2 (6x^2y - 2x) dy dx$

(b) 15.1.17 $\int_0^1 \int_1^2 (x + e^{-y}) dx dy$

- 3 15.2.1 Evaluate the iterated integral: $\int_1^5 \int_0^x (8x - 2y) dy dx$

- 4 15.2.13 Evaluate the double integral in two ways.

$$\iint_D x dA,$$

D is enclosed by the lines $y = x$, $y = 0$, $x = 1$.

- 5 15.2.15 Set up iterated integrals for both orders of integration. Then evaluate the double integral using the easier order and explain why its easier.

$$\iint_D y dA$$

D is bounded by $y = x - 2$, $x = y^2$

- 6 15.1.37 Find the volume of the solid that lies under the plane $4x + 6y - 2z + 15 = 0$ and above the rectangle $R = \{(x, y) \mid -1 \leq x \leq 2, -1 \leq y \leq 1\}$

- 7 15.2.23 Find the volume of the solid that is under the plane $3x + 2y - z = 0$ and above the region enclosed by the parabolas $y = x^2$ and $x = y^2$.