

Homework 8 — MATH 1586 Spring 2018

1. Draw the region and calculate  $\int_2^3 \int_0^6 x^2 y dx dy$ .
2. Draw the region and calculate  $\int_0^1 \int_1^2 \frac{e^x}{y} dy dx$ .
3. Sketch  $R$  and calculate  $\iint_R x^3 y^2 dA$ , where  $R$  is the region bounded by the lines  $y = 2x$ ,  $y = 0$ , and  $x = 2$ .
4. Sketch  $R$  and calculate  $\iint_R e^{xy} dA$  where  $R$  is the region bounded by the lines  $y = 2 - 2x$ ,  $x = 0$ , and  $y = 0$ .
5. Sketch  $R$  and calculate  $\iint_R x + y dA$ , where  $R$  is the region bounded by  $y = 0$ ,  $y = x^2$ , and  $x = 1$ .
6. Sketch  $R$  and calculate  $\iint_R x^2 + y dA$ , where  $R$  is bounded between  $y = \sqrt{x}$  and  $y = x^2$ .
7. Sketch  $R$  and calculate  $\iint_R e^x y dA$ , where  $R$  is the triangular region defined by the points  $(-1, 0)$ ,  $(1, 0)$ , and  $(0, 1)$ .  
(*hint: recall that the line between the points  $(a, b)$  and  $(c, d)$  has slope  $m = \frac{b-d}{c-a}$  and obeys the equation  $y - b = m(x - a)$ )*)