

Problem Set 3

MATH 16B Spring 2016

18 February 2015

Exercise (7.6.4). Calculate

$$\int_0^1 \int_{-1}^2 \frac{y^3}{3} dy dx.$$

Exercise (7.6.8). Calculate

$$\int_0^1 \int_0^x e^{x+y} dy dx$$

Exercise (7.6.14). Find the volume of the region bounded above by $f(x, y) = x^2 + y^2$ and lying over the region R bounded by the curves

$$x = 0, \quad x = 1, \quad y = 0, \quad y = \sqrt[3]{x}.$$

Exercise. Let R be the region bounded by the curves

$$y = 1, \quad y = 4, \quad y = x^2.$$

Calculate

$$\iint_R x^2 + y dx dy.$$