MATH S1202: Calculus IV
Quiz 3
June 7, 2018

1. Compute the gradient $\nabla f(3,4)$ where

$$f(x,y) = \sqrt{x^2+y^2}.$$

2. Compute the area enclosed by the ellipse

$$\frac{x^2}{4} + \frac{y^2}{25} = 1$$

using ideas from Chapter 15. (Hint: There are several ways of doing this problem, but perhaps the easiest is to use the change of variables $x = 2r\cos(\theta)$ and $y = 5r\sin(\theta)$.)

4. Let C be the line segment from $(0,0)$ to $(1,1)$ in the xy-plane. Compute the line integral $\int_C xy\,ds$.