

1. (20 points) Compute the first order partials for the following:

$$f(x, y) = x^2 + \ln(5x - 3y^2)$$

2. (40 points) Given  $f_x = x^4 + 6\sqrt{y} - 10$  and  $f_y = e^y - \sin(x^x)$ , compute all second order partials.