1. $f(x,y) = x^4 + 2xy + y^3x - 1$
   - $f_x = 4x^3 + 2y + y^3$
   - $f_y = 2x + 3xy^2$
2. $f(x,y) = \sin(x)$
   - $f_x = \cos(x)$
   - $f_y = 0$
3. $f(x,y) = x^2 \sin^2(y)$
   - $f_x = 2x \sin^2(y)$
   - $f_y = 2x^2 \sin(y)\cos(y)$
4. $f(x,y) = xe^{x^2+y^2}$
   - $f_x = e^{x^2+y^2} + x(2x)e^{x^2+y^2}$
   - $f_y = x(2y)e^{x^2+y^2}$
5. $f(x,y,z) = ye^x + z$
   - $f_x = ye^x$
   - $f_y = e^x$
   - $f_z = 1$