Worksheet #22

(1) Find the indicated partial derivatives.
$$f(x,y) = \arctan(y/x); \quad f_x(2,3) \quad f_y(2,3)$$

(2) Find $\frac{dz}{dx}$ and $\frac{dz}{dy}$ for $x^2 - y^2 + z^2 - 2z = 4$.

(3) Find $\frac{dz}{dx}$ and $\frac{dz}{dy}$ for
  - $z = f(x)g(y)$

  - $z = f(x/y)$

(4) Find all second partial derivatives. $f(x, y) = \frac{xy}{x-y}$

(5) Find f_{zyx} of $f(x, y, z) = e^{xy^2z}$