Name and Student Number: __________________________________________________________

1. Find the domain of the function \( f(x, y) = \sqrt{x - 2y + 4} \). Please graph the domain in the xy-plane!

2. Consider the surface \( S \) given by: \( z = 5\sqrt{x} - y \). Find and sketch

   (i) The trace of \( S \) in the plane \( x = 2 \).

   (ii) The level curves in the planes \( z = 0 \) and \( z = 2 \).
3. (i) Find $f_x$ when $f(x, y) = x \cos(xy)$

(ii) Find $\frac{\partial f}{\partial y}$ when $f(x, y) = \ln\left(\frac{x}{y}\right)$. 

Good Luck!