MATH 243: SECTION 14.6 GROUPWORK

(1) Find the directional derivative of $f(x, y) = x^3/y + xy$ at the point $(2, 1)$ in the direction of the vector $\vec{v} = \langle 1, 1 \rangle$.
(2) Compute ∇f where $f(x, y, z) = xy^2z^3 + x^2y + x^3z + y^2z^2$.
(3) Find the maximum rate of change of $f(x, y) = xe^{xy}$ at the point $(1, -2)$, and determine the direction it occurs.