MATH 243: SECTION 14.4 GROUPWORK

(1) Find an equation for the tangent plane to the surface $z = x^2 + xy + y^2$ at the point $(1, 2, 7)$.
(2) Find the linear approximation to the function $f(x, y) = xe^{xy}$ at the point $(1, 1)$ and use it to approximate $f(1.01, 0.99)$.
(3) Find the differential $\mathrm{d}w$ if $w = z\cos(x + y) + z\sin(x - y)$.