

Name: _____

There are 20 points possible on this quiz. This is a closed book quiz and closed note quiz. Calculators are not allowed. If you have any questions, please raise your hand.

1. (5 points) Find all second order partial derivatives of $f(x, y) = xe^{2y} - x^2y^{-1}$.

2. (2 points) Find $\partial P/\partial V$ for the ideal gas law: $PV = mRT$.

3. (5 points) Find the tangent plane to the surface $f(x, y) = \frac{1+2y}{2+x}$ at the point $(-3, 4)$.

4. Let $f(x, y) = x^3 - x \cos(y) + y$.

(a) (5 points) Find the differential of $f(x, y)$.

(b) (3 points) Use the differential estimate the change in $f(x, y)$ as (x, y) changes from $(1, 0)$ to $(0.9, 0.2)$.