

MATH 251, Section _____
Thursday, Sept. 30, 2010

Quiz 5 (Sections 12.4, 12.5, 12.6).
Dr. M. Vorobets

NAME (print): _____

No credit for unsupported answers will be given. No calculators. Clearly indicate your final answer

1. [2 pts.] Find the differential of the function $z = \ln(2x - 3y)$.

2. [3 pts.] Find dw/dt if $w = \frac{x}{y} + yz$, $x = \sqrt{t}$, $y = \cos(2t)$, and $z = e^{-3t}$.

3. [2 pts.] Find the direction derivative of the function $f(x, y) = x^3 - 4x^2y + y^2$ in the direction of the vector $\vec{u} = \left\langle \frac{3}{5}, \frac{4}{5} \right\rangle$.

[more problems on back]

4. [3 pts.] Find the equation of the tangent plane to the surface $x^2 + y^2 - z^2 - 2xy + 4xz = 4$ at the point $(1,0,1)$.