

Math 225: Calculus III
Quiz 4 Feb. 21/23, 1995

Name: _____
Section: _____

1. Find the slope of the line tangent to the intersection of the plane $y = 3$ and the surface $z = \frac{y^2 - x^2}{y^2 + x^2}$ at the point $(1, 3, 4/5)$.

2. Let $w = x^2y^3$ where $x = x(u, v)$ and $y = y(u, v)$ are functions of u and v . Suppose $x(1, 0) = -1$, $y(1, 0) = 1$, and

$$\begin{aligned} \dot{x}/du(1, 0) &= 2 & \dot{x}/dv(1, 0) &= 3 \\ \dot{y}/du(1, 0) &= 0 & \dot{y}/dv(1, 0) &= -2 \end{aligned}$$

Compute \dot{w}/du and \dot{w}/dv at the point $(u, v) = (1, 0)$.