

**Instructions.** Show all work, with clear logical steps. No work or hard-to-follow work will lose points.

- 1.) (5 points) If  $z = f(x, y)$  and  $x = g(u, v)$  and  $y = h(u, v)$ , how do you find  $\partial z / \partial u$ ?
- 2.) (5 points) Compute the derivative of  $f(x, y) = x^2 - y^2$  in the direction of  $\langle 3/5, 4/5 \rangle$  at the point  $(-1, -3)$ .
- 3.) (5 points) Find an equation of the tangent plane to the following surface at the given point.

$$xy + 7yz + 2xz = 40; \quad (2, 2, 2)$$

- 4.) (5 points) For 5 points write “My section number is ---, and I will remember this for the exam on Monday.” In the blank write your section number (8:30 = 616, 9:30 = 608, 10:30 = 624).