

MATH 113: DISCRETE STRUCTURES
READING QUESTIONS FOR MONDAY WEEK 4

Reading assignment. CAES §4.5.

Problem 1. Determine all the partial derivatives of the function $g : \mathbb{R}^3 \rightarrow \mathbb{R}$ which takes $(x, y, z) \in \mathbb{R}^3$ to $g(x, y, z) = z \sin(xy)$.

Problem 2. Find the partial derivatives of the components of $h : \mathbb{R}^2 \rightarrow \mathbb{R}^3$ given by $h(s, t) = (t, s^2, st)$.

Problem 3. Compute the partial derivatives of the composite $g \circ h$ in two ways: directly in terms of the formula for $g(h(s, t))$ and via the chain rule. (You should get the same answer!)