

Subject: Session 43

Year. Month. Date. ()

$$1. \left(\frac{\partial w}{\partial u} \right)_v = 3u^2 - v^2 - 2u \cdot v \cdot \left(\frac{\partial v}{\partial u} \right)_w \\ = 3u^2 - v^2 - 2u \cdot v$$

$$\left(\frac{\partial w}{\partial v} \right)_u = 0 - u \cdot 2v \cdot \left(\frac{\partial v}{\partial u} \right)_w = -2u \cdot v$$

$$2. dw = (3u^2 - v^2)du - 2uvdv$$

$$du = u dy + y du$$

$$dv = du + dy$$

$$\Rightarrow dw = (3u^2 - v^2)du - 2uv(du + dy) \\ = (3u^2 - v^2 - 2uv)du - 2uvdy$$

$$\Rightarrow \left(\frac{\partial w}{\partial u} \right)_v = -2uv$$

$$\left(\frac{\partial w}{\partial v} \right)_u = 3u^2 - v^2 - 2uv.$$