Tutorial 1 Jan 15, 2021 Linear Algelora Review Importance of Linear Algebra - Vectorizing code - Images are in matrices - Dinerevan reduction Basic Properties 1. LABIT = BTAT 2. (AB) = B-1 A-1

3. (A-1) T = (AT)-1

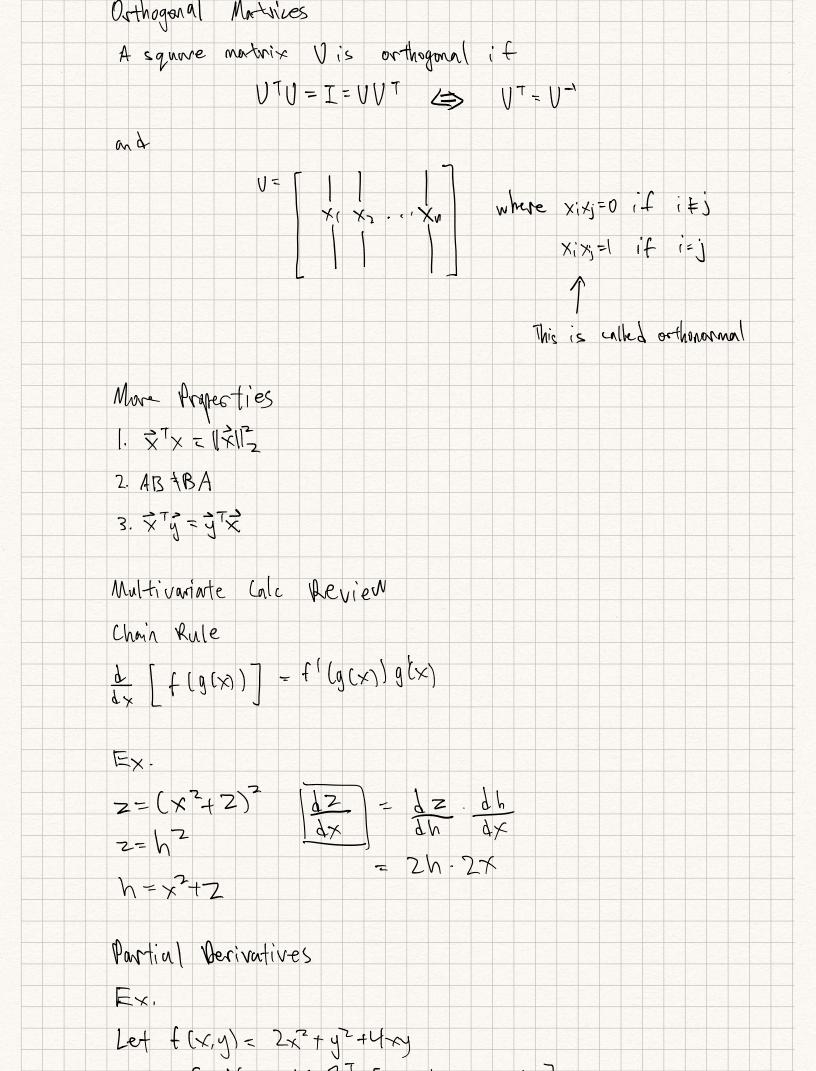
4. LAB = IAI B - Determinant con tell if mortix is non-signlar #0 or singular =0. ie. haw many solutions.

5. 1 A \ = 1 A - (1

Determinant of 20 Matrix

Osthogoral Vectors

2 vectors are orthogonal, x,y EIR" if



Jacobian Hessian Martin

Jucobium = first order derivatives

Hessim = second order devivatives

Soif
$$\nabla f(x) = \left[\frac{1}{4x}, \frac{df}{4y}\right]$$

$$|f(f(x))| = \begin{bmatrix} \frac{1}{2}t & \frac{1}{2}t \\ \frac{1}{2}xdx & \frac{1}{2}t \end{bmatrix}$$

$$\frac{1}{2}t + \frac{1}{2}t$$

$$\frac{1}{2}dx + \frac{1}{2}dx$$

Some I don'tities.

1.
$$d\vec{a}^{\dagger}\vec{x} = a$$
 $(\vec{a}^{\dagger}\vec{x}) = a$

Where A is symmetric

$$\frac{3. \ d \stackrel{>}{\sim} TA \times}{d \times} = (A + A^{T}) \stackrel{>}{\sim}$$