The norm of an operator 11711
Dow This norm so defined satisfy the four Poop of a norm 3 ITAII < C 11211 C is a real number. 1/T11 = Brep 1/Tall 11π $\frac{1}{11} \frac{1}{11} = 0$ $\frac{1}{11} \frac{1}{11} = 0$ $\frac{1}{11} \frac{1}{11} = 0$ $\frac{1}{11} \frac{1}{11} = 0$ $\frac{1}{11} \frac{1}{11} = 0$ 11T11 = Sup 11Tx11 1471/Sup/12/72/1 - Serp/2/1/72/1 Triangl inequality. $Sep ||(T_1 + T_2)x|| = Sup ||T_1x + T_2x|| \leq Sup ||T_1x|| + Sup ||T_2x||$ $||x|| = ||T_1|| + ||T_2||$ $= ||T_1|| + ||T_2||$ Worns of various operations. Identity operator $T: X \to X$ III = I I(X) = XXFSOZ 11III Sup & 11 I Caroll 3 "" Sup [1121] 3 | [1211] Zero Opento. X -> Y 1011 = 0 Diffuentantion operator. List he is on J=[0,1], ||x||=man|x(t)|, t tJ the normal Space of all Polysonials 7 i ba Polymonial A differentiation operator t: T(x(t)) = x'(t) dip $w \cdot R \cdot To t$.

35 this Liver? T(XX+By) = da'+By' = ATX+BTy / luvian. 21 this lamber $||x_n|| = 2nan|x(t)|=|$ $ttJ_{(0)}$ 我の れっしい = もれ かも N てるりまる。(t)= かせかー $|T|| = \sup_{|m| \in \mathbb{N}} ||Tx_n|| = \sup_{n \in \mathbb{N}} = n$ in $\in \mathbb{N}$ is artificial, for $t^n \rightarrow ||T|| = n$ for $t^n \rightarrow ||T|| = m$ There is no fined mules brokent IITan ! SC This operator is limar beet not bounded