37 September. 2020 Equivalence of Droms. Remarker of our word rector space X any wern (1.11) is equivalent to any other. It is equivalent to any other we the $n = d_1e_1 + \cdots + d_ne_n$. By a result done lastier. I a const. e_1 , e_2 , e_3 is any hars for k. Then any we the $n = d_1e_1 + \cdots + d_ne_n$. By a result done lastier. I a const. e_3 , e_4 , e_5 , e_7 , e_8 , Rassidu 112110=114e,+6,2,+··+dne,110 < 114,e,110+··+[Kne,110]
= |4,1|11e,110+··-14,111e,110 orhere k's the max value of 11e;110. - Multiply hey \subseteq on both sides $\frac{C}{K}$ [| χ |] $\leq \frac{C}{K} \cdot \frac{K}{2} \cdot \frac{2}{3} \cdot \frac{1}{3} \cdot \frac{$ Set <u>C</u>=a all all o < 11 all he need to show that a/1 x110 < 15x11 < b/1 x110 Interchange the volles of 11.11. $||x|| = ||x|e_1 + - ||x|e_n|| \le ||x|| \le ||x|| \le ||x|| = ||x|$ Malurying with (2) 30 = 17 | 17 | 5 | 2 | 2 | 2 | 2 | 1 | 1 | 11746 71 c (|x/1+ · · |x/n|) = E = |x/s| > a ||x/l| $\frac{(2)||x||_0}{||x||_0} = \frac{||x||_0}{||x||_0} = \frac{||x||_0}{||x||_0}$ $\frac{||x||_0}{||x||_0} \leq \frac{||x||_0}{||x||_0}$ Show that the anims of an Equivalence relation hold for the Relation 'equipalent horms". 1) /1:11 on X is equivalent to 11.11, on X 11.11 \square 11.11 is all allo < 11 21/0. 2) Symmetry: (=) $a'(|x|) \leq |x| \leq |x| \leq |x|$ $\frac{1}{6} ||x|| \leq ||x|| \leq \frac{1}{6} ||x|| \leq \frac{1}{6}$ $\|x\| \geq \frac{1}{6} \|x\|$ Supposi/1.11 × 11·110 and 11·11 × 11·11, Then I constants a, b, c, d>0 such that & a + X we have ala165 12/15 6/12/10 & C/12/1,5 /12/10 5 d/12/1, on the one houd. T: A -> B (A is an asb -set) Consider a Inian Transform Jerma Welter Space to a wellow Space partialent strend spære: Such a Liven Transfordin j called age à Linear Oper ventor. Deg: A Luieur Operator T 15 an operator tu Domain D(T) is a nector space nd Range RT) va nector space over the Same field. A Dyge Det) and scalarsh T(Xxy) = Tx +Ty

T(Xx) = ZTx Take $\lambda = 0$ T(0) = 0Tentity Operator I; X > X Zerro operator 0:X >Y 0.2=0 HatX Diff Operation X: he the wester spaceof all polynoments on [a] ブァ(t) = x(t) サ スピX The operator T:R3 R3 Cross product is admas operation 7₂7: 7.0 Prone that R(t) is another Space. Ly y, y, E R(T) me have to S.T. Ly, + By_ER(T). $y_1 = Tx_1$ $y_2 = Tx_2$ $x_1, x_2 \in D(T)$ $dx_1 + \beta x_2 \in D(T)$ $dy + By_2 = dTn_1 + 13Tn_2 = T(dn_1) + T(Bn_2) = T(dn_1 + Bn_2)$ (I) The miss operator T : R(T) - D(T) if exists if Tx=0 => x=0 Let the let $T_{x_1} = T_{x_2} = T_{x_1} - T_{x_2} = T(x_1 - x_2) = 0$ $\Rightarrow 7_1 - x_2 = 0$ $T = \chi_2 \Rightarrow T = \sin \delta S$. Bonded & Continuous Awar operators X and Y are normal spaces. T: D(T) > Y is a linear operation. where D(T) < X. The operator is said to be hounded if there is a Real muleer C such that it is to Dt) What is the somallest provible c such that thus holds of nonzero of G D(T). 11711 = Sup | 17x11 24 D(T) = {03}, 1711=0. List the a bounded linear operator (11Ta11 < < 11x11) Then an alternative formula for the room of 75 At ||x|| = a set y = L(x) where $x \neq 0$ Then $\frac{||x|| - a}{a} = 1$ 11T11 = Sup 11Ty1 Suplitall So defind satisfer all 4 peop of a Norm J(11x1170) ST. 11T11710 112(1206) 720 11711=0 (5) T=0 { Soperator } 11T11 - Sup 11TX11. = 0