```
ANA UG
7.) (X, 11. 11x), (Y, 11. 11y) ... novnierte Ränne über R (C)
   11 (x, y) 1100 = max { 11 x 1/x , 11 y 11 y }
                                               11(x,y)1/2=11×11x+11y11y
   11(x,y)112 = 1/11x11x2 + 11x11y2
   22: 11.11, 11.112 sind Norman and XXY
   (NA) EZ: ∀(x,y) ∈ Xxy: ||(x,y)||, ≥0, ||(x,y)||2 ≥0
                 11(x,y)1/2=0 => (x,y)-10,0) und 11(x,y)1/2=0=>(x,y)=(0,0)
           Sei × ∈ X, y ∈ Y bel.
             11 (x, y) 1/2 = 11 x1/x + 11 x 1/2 > 0, da 11 x11x und 11 x 11 x lede > 0
             11(x,y)1/2 = 1/1x1/x2 + 1/y1/y2 >0 genauso klar
           Falls x=0 und y=0 gill
            11 (x, y) 1/2 = 11 x 11x + 11 y 1/2 = 1101/x + 1101/y = 0
            11(x,y)112 = V11x1/2+11y11y2 = V11011x2+11011,21 = V0' = 0
          Falls 11(x,y)11,=0 bzw. 11(x,y)12=0
            0=11(x,y)11n=11x11x+11y11y (=> x=0 und y=0
           0=11(x,y)112=11x11x2+11y11y2 =>11x11x=011y11y=0 => x=01y=0
 (NZ) 22: \((x,y) \in X+Y \tau \tau \R(C): \|\lambda(x,y) \|_2 \| \|\lambda(x,y) \|_{1,2}
         Sei XEX, y & Y und d & R (C) hel.
        \|\lambda(x,y)\|_{1} = \|(\lambda x, \lambda y)\|_{1} = \|\lambda x\|_{X} + \|\lambda y\|_{Y} = \|\lambda\| \cdot \|x\|_{X} + \|\lambda\| \cdot \|y\|_{Y} = \|\lambda\| \cdot \|(x,y)\|_{1}
        \|\lambda(x,y)\|_{2} = \sqrt{\|\lambda x\|_{x}^{2} + \|\lambda y\|_{y}^{2}} = \sqrt{|\lambda|^{2} (\|x y\|_{x}^{2} + \|y \|_{y}^{2})^{2}} = |\lambda| \cdot \|(x,y)\|_{2}
 (N3) zz: \forall (x,y), (a,b) \in X \times Y: U(x,y) + (a,b) U_{1,2} \leq U(x,y) U_{1,2} + V(a,b) U_{1,2}
       Sei x, a EX, y, b eY bel.
       11(x,y)+(a,6)11,=11(x+a,y+6)11,=11x+allx+11y+blly=11x11x+lla11x+11y11y+11611y
      = 11(x,y)1/2+11(a,6)1/2
      11 (x+a, y+6)12 = V11 x+allx2+11 y+611y2 = V(11 x11x+11allx)2+(11 y 11y+11611y)21
      < 1 | | x | x 2 + 1 y | y 2 + 1 | a | x + 16 | 4 | 2 = 11 (x, y) | 2 + 11 (a, 6) | 12
      Minkowskische Ungleichung (Buch Lemmer 3.1.4)
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ANA UG 7.)... 22: 11.110, 11.11, 11.112 sind passweise agrivalent Sei (x,y) EXXY bel. max { ||x||x, ||x||x} = 1 ||x||x + ||x| $||(x,y)||_{\infty} \leq ||(x,y)||_{2} \leq ||(x,y)||_{1} \leq p \cdot ||(x,y)||_{\infty} (\leq p \cdot ||(x,y)||_{2} \leq p \cdot ||(x,y)||_{1})$ Also 1.11(x,y)1100 = 11(x,y)11, =p.11(x,y)1100 => 11.1100 ~ 11.111 1.11(x,y)1100 = 11(x,y)112 = p.11(x,y)110 => 11.1100 ~ 11.112 $1 \cdot \|(x,y)\|_{2} \le \|(x,y)\|_{1} \le p \cdot \|(x,y)\|_{2} \Rightarrow \|.\|_{2} \sim \|.\|_{1}$