R^n
$\max\{x_2, \ldots, x_n\}$
No
$(1, 0, \ldots) \neq$
0
0
$\sum_{i=1}^{n} x_i^3$
No
$(1, \ldots, 1)$
n
$(2, \ldots, 2)$
$8n >$
$n+$
n
$\left(\sum_{i=1}^{n} \sqrt{x_i}\right)^2$
No
$(0, 1), (1, 1) \in$
R^2
$\{ (4, 0) \mapsto (2+0)^2 = 4(0, 4) \mapsto (0+2)^2 = 4but(4, 0)+(0, 4) = (4, 4) \mapsto (2+2)^2 = 16 > 4+4.$
$\max\{x_1-$
x_2, x_1+
$x_2, x_3, x_4, \ldots, x_n\}$
Yes,
this
is
a
norm
$f :$
$R^n \times$
$R^n \to$
R_0
$f(x) :=$
R_0
$f(x)0$
$f(x) =$
0
$x_3 =$
$x_n \equiv$
0
x_1-
$x_2 =$
x_1+
$x_2 =$
0
$x_1 =$
$x_2 =$
0
$x =$
0
$\lambda v =$
λv
$\max\{x_1+$
y_1-
x_2-
y_2, x_1+
y_1+
x_2+
y_2, x_3+
$y_3, \ldots, x_n+$
$y_n\}$
$\max\{x_1-$
x_2+
y_1-
y_2, x_1+
x_2+
y_1+
y_2, x_3+
$y_3, \ldots\}$
$\max\{x_1-$
x_2, x_1+
$x_2, x_3, \ldots\}+$
$\max\{y_1-$
y_2, y_1+
$y_2, y_3, \ldots\}$
$=$
$f(x)+$
$f(y).$
f
R^n
$\sum_{i=1}^{n} 2^{-i} x_i$
This
is
yet
an-
other