E11.3 [ozy] Note that if $v, w \in X$ are linearly dependent and have the same direction (i.e. you can write $v = \lambda w$ or $w = \lambda v$, for $\lambda \geq 0$), then you have

$$\|v + w\| = \|v\| + \|w\| \quad .$$

In particular, a norm is not a strictly convex function, because

$$\|v/2 + v/2\| = \frac{1}{2}\|v\| + \frac{1}{2}\|v\| \quad .$$