#atomic #incomplete #stub sourced from KBx2AExercises

1 | **Direct sums**

Don't have the same rules when you add two together and many together! Intersection of zero != direct sum when you are adding more than one.

$ u_1 + u_2 + \ldots + u_n = \{u_1 + u_2 + \ldots + u_n \mid u_1 \in U_1, \ldots, u_n \in U_n\} $

If the direct sum requirements are not true, then it's just a sum.

Direct sum is all possible combos?

When all the vectors inside the direct sum are linearly dependent, then you can't make a direct sum with them? Because really, $u_1 \in u_2$ Because the sums will not be unique. **Redundancy!**

$ U_1 = \left\{ \begin{bmatrix} 1 \\ 0 \end{bmatrix} \right\} $ $ U_2 = \left\{ \begin{bmatrix} 2 \\ 0 \end{bmatrix} \right\} $ doesn't work, cus you can just multiply all in U_1 by 2 to get things in U_2