Some Questions

1. Can $\mathbf{Z}$ be a vector space over some field?
2. What are important geometric things about $\mathbf{R}^n$ that can be realized algebraically?
3. Using high school knowledge, in what ways are $\mathbf{Z}$ and $\mathbf{R}[t]$ alike?
4. How can you describe subspaces of $\mathbf{R}^n$ geometrically? Does it generalize?
5. Why do we need dimension, linear independence, abstract vector spaces, etc.