Source:

A quotient space is similar to a modulo because both take some subpart of the structure and smoosh it to zero.

1 | looking at V/U

1.1 | set of affine subsets ($\{ v+U : v □ V \})

1.2 | ”modding out by U” (a subspace) means it gets collapsed to zero

1.2.1 | could just ”call the line zero” or carry the entire thing as an element

1.2.2 | these are NOT subspaces because most of them don’t include zero!

1.3 | V/U is isomorphic to the perpendicular line

1.4 | if two vetors end up on the same affine subset, then when you subtract them, their difference is an element of U and thus the same as zero