

Source: [\[KBe2020math530refExr0nRetIndex\]](#)

## Solve Equations

Operation timed out. Arithmetic errors.

## Read 1.B and 1.C

### General Notes

- The distributive property is extremely useful ### 1.35 Example
  - a) If  $b = 0$  then we can divide all  $x_3$  by 5 and combine the last two terms to get  $F^3$ , which is a vector space, without loss of generality. If not, then when you try to multiply by a scalar then you will find that the above reasoning breaks (i think).
  - b)  $f(x) = 0$  is continuous, so the additive identity exists. All sums of continuous functions result in continuous functions, so it is closed under addition. And all scalar multiples also work out.
  - c) slightly awkward: i don't actually know what a differentiable real valued function is. #todo-exr0n
  - d) (see above)
  - e) what does it mean for a sequence of complex numbers to have a limit 0? but I think you can use the same argument that the missing elements are just "collapsed" into one invisible one. ### 1.40 Definition direct sum
  - Something about uniqueness?
  - If there is only one way to write zero then it works (1.44 Condition for a direct sum)
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