

Mathematics 4790H – Analysis II: Topology and Measure

TRENT UNIVERSITY, Winter 2025

Assignment #6

Unions of σ -algebras

*Due on Friday, 28 February.**

As mentioned in class and text, the intersection of (any number of) σ -algebras on a set X is also a σ -algebra on X . This is sadly not true for unions.

1. Give an example of a set X and a collection of σ -algebras on X such that the union of these σ -algebras is not itself a σ -algebra on X . [10]

For One Who Loves An Engineer

Sing not to me of silicon chips
The chocolate kind are sweeter
But sweeter still would be your lips –
Put down that voltage meter!

A jug of wine (viscosity 3),
Loaf of bread (shear modulus 7)
But me you cannot quantify –
Oh, glory be to heaven!

Miriam Nadel

* Please submit your solutions, preferably as a single pdf, via Blackboard's Assignments module. If that fails, please submit them to the instructor on paper or via email to sbilaniuk@trentu.ca as soon as you can.