

## 0.1 The Sierpinski-Mazurkiewicz Paradox

This week we need to investigate the Sierpinski-Mazurkiewicz Paradox! This paradox was discovered after Vitali sets, and before the Banach-Tarski paradox. We need the Sierpinski-Mazurkiewicz Paradox because it is a concrete and constructive example. It will be very helpful in understanding the more general Theorem 1.10, which we will use a lot in Chapter 2.

Please read:

1. Theorem 1.7, Theorem 1.8, and Theorem 1.9 in the book.
2. Theorem 1.10 in the book.
3. The discussion after Theorem 1.9 and Theorem 1.10 may be very helpful.

## 0.2 To Present

I would like you to present both,

1. The proof for Theorem 1.7 (contained in Theorem 1.8 and Theorem 1.9 and the surrounding discussion).
2. The proof of Theorem 1.10, which is the more general version.

Again, please just do your best. You have been doing an amazing job so far, but I don't have a good sense of how much work 4 hours is for you. So feel free to let me know if it is either too much or too little. We can adjust easily :)