

# Proof in Math for Elementary School Teachers Courses

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- ▶ Let's look at responses:
- ▶ Key takeaway: understanding!!

- ▶ Important for teachers to understand "why" - and the idea of the field of mathematics
- ▶ Many researchers and curricula recommend proof as an integral part of the student experience at all grade levels (e.g. Ball and Bass 2003; Stylianides 2007)
- ▶ Teachers struggle with the notion of justification outside of empirical evidence/examples (Hauk et al, 2008)
- ▶ If teachers don't study proof in these courses, there is a good chance they may never have an opportunity to

- ▶ Covers all topics in the MB K-8 curriculum at a deeper level
- ▶ Include proofs of three types:
  - ▶ Elementary divisibility results (students must do these themselves)
  - ▶ "Important" proofs (students must memorize these)
  - ▶ Geometric/two-line proofs (students must do these themselves)
- ▶ Spend 4ish weeks covering logic/proof/sets

- ▶ Students find proofs the hardest part of the Math 2903/2904 curriculum
- ▶ Evidence that students that can master simple divisibility proofs have more success in the course compared to those that haven't
- ▶ Anecdotal evidence that proofs help with understanding in any other mathematics courses taken by Math 2903/2904 students.

- ▶ How much proof should we introduce to pre-service teachers?
- ▶ Should we introduce proof to other non-major courses as a way to increase understanding?
- ▶ When/how much proof should be introduced in the school curriculum?