SEMINAR IN NUMBER THEORY: PAPER RUBRIC
MIT 18.784, SPRING 2026

INSTRUCTOR: ROBIN ZHANG

Each presentation will be graded on the following components: mathematical correctness, exposition, and writing process. Within each category, descriptions of each grade level out of 5 are provided here to serve as guides. Some factors affecting the final grade may not be included in the descriptions here.

Mathematical correctness (40%).

5 The mathematics is correct and sufficiently rigorous. The paper demonstrates a solid understanding of the material on behalf of the author. The paper provides an effective synthesis: readers gain greater insight by reading the paper than they would receive simply by reading the sources. Although the paper does not present original results, it succesfully synthesizes material from several sources to create a focused, cohesive paper that provides relevant connections, insights, and motivations that are due to the author.

4 The mathematics is mostly correct and reasonably rigorous. The paper demonstrates a good understanding of the material, but there are some minor errors, inconsistencies, or omissions that detract from the rigor or correctness. The synthesis is generally effective, but may lack some depth or clarity in its connections. While the paper draws from multiple sources, the synthesis might be somewhat superficial, or might miss some key connections.

3 The mathematics is somewhat correct and lacks rigor in places. The paper demonstrates an adequate understanding of the material, but there are major errors, inconsistencies, or omissions that significantly detract from the rigor or correctness. The synthesis is present but weak, failing to provide substantial new insights. The paper may rely heavily on paraphrasing rather than true synthesis, or may struggle to integrate multiple sources effectively.

2 The mathematics is flawed or largely incorrect. The paper demonstrates a limited understanding of the material, with critical errors and inconsistencies that undermine the rigor and correctness. The synthesis is minimal or nonexistent, and the paper fails to create a cohesive whole from the sources. The paper may rely heavily on direct quotes without proper integration, or show significant misunderstanding of the source material.

Exposition (40%).

5 The paper is carefully crafted to ease reading and understanding for the target audience (peers of the authors). The paper is cohesive, carefully focused, and structured. The writing is clear and flows. New ideas are concisely introduced or motivated. Examples and figures are carefully crafted to aid understanding when appropriate. Mathematical language and notation is used appropriately. Citations clearly acknowledge the reliable sources used when appropriate. The writing is carefully formatted and proofread. The LaTeX formatting follows research mathematics standards and the course requirements (e.g. *amsart* template defaults, 8–12 pages long).

4 The paper is generally well-written and easy to follow for the target audience. The paper is mostly cohesive and focused, with a clear structure. There are minor lapses in clarity or flow, but these do not significantly impede understanding. Examples and figures, if present, are generally helpful. Mathematical language and notation are mostly correct. Citations to reliable sources are generally present and appropriate. The paper may contain minor formatting or grammatical errors. The LaTeX formatting largely follows research mathematics standards and the course requirements (e.g. *amsart* template defaults, 8–12 pages long).

3 The paper is understandable, but exhibits noticeable weaknesses in exposition. The paper may lack focus or have a somewhat unclear structure. There are several instances where clarity is compromised or where the flow is disrupted (e.g. an overly wordy or convoluted passage). Examples and figures may be poorly explained, inappropriate, or missing. Mathematical language and notation may contain errors or inconsistencies. Citations may be incomplete, inaccurate, unreliable, or missing in several places. The paper may contain noticeable formatting or grammatical errors. The LaTeX formatting may deviate from research mathematics standards or the course requirements (e.g. *amsart* template defaults, 8–12 pages long).

2 The paper is difficult to understand due to significant flaws in exposition. The paper lacks focus and structure, making it hard to follow. Clarity is severely compromised throughout. Examples and figures may be poorly explained, inappropriate, or missing. Mathematical language and notation are frequently incorrect or inappropriate. Citations are largely incomplete, inaccurate, unreliable, or missing. The paper exhibits numerous proofreading errors, suggesting a lack of care in presentation. The LaTeX formatting may not follow research mathematics standards or the course requirements (e.g. *amsart* template defaults, 8–12 pages long).

Writing process (20% in four stages).

5 The topic proposal demonstrated careful thought into selecting an area for a potential paper. The first and second drafts were carefully crafted and represented the best capabilities of the author. The author ensured that they understood the provided feedback and the reasons for it, and each revision successfully took into account but was not limited to the provided feedback (including effective solutions wherever the author disagreed with provided suggestions).

4 The topic proposal showed a reasonable level of thought. The first and second drafts were generally well-written and represented serious effort by the author. The author mostly understood and incorporated the provided feedback, with minor areas where feedback was missed or not fully addressed.

3 The topic proposal was adequate but lacked depth. The first and second drafts showed some effort, but also exhibited significant areas for improvement. The author understood some of the provided feedback, but struggled to incorporate it effectively, leading to incomplete or inconsistent revisions.

2 The topic proposal was poorly conceived or executed. The first and second drafts showed a lack of effort or understanding. The author demonstrated a limited understanding of the provided feedback, and revisions were largely ineffective or absent.