

MATH 2001 PROOF GRADESHEET

0.1. **Writing.** Grade: 0 1 2 3 4 ungraded

This is the art of writing mathematics **for an audience**. (Ungraded may occur if the logic was sufficiently difficult to follow that I could not evaluate the writing.) Areas that need improvement:

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| (1) Complete and simple sentences, appropriately sized. | (13) Observe the established culture/etiquette. |
| (2) Do not include extraneous information. | (14) Do multiple drafts as needed. |
| (3) Keep structure and language in line with logical steps. | (15) Provide all necessary information to reader. |
| (4) State assumptions. | (16) Do not include examples. |
| (5) Introduce variables appropriately. | (17) Do not re-use variables, or use excess variables. |
| (6) Guide the reader. | (18) Correct language for calling on a definition (do not quote definition). |
| (7) Choose notation to maximize clarity. | (19) Remark to reader the necessary things to check. |
| (8) Identify the use of hypotheses. | (20) Proper left-to-right flow of equations. |
| (9) Keep structure organized on the page and legible. | (21) Discriminate between assumptions and implications. |
| (10) Precision over vagueness. | |
| (11) Honesty about logical gaps or imprecision. | |
| (12) Value simplicity. | |

0.2. **Logical Reasoning.** Grade: 0 1 2 3 4 ungraded

This is the art of correct and logical reasoning from hypothesis to conclusion. (Ungraded may occur if the writing is sufficiently confusing that I cannot evaluate the logic.)

Areas that need improvement:

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| (1) Avoid logical errors. | (10) Correct use of contrapositive or contradiction. |
| (2) Justify logical steps. | (11) Do not forget cases. |
| (3) Choose appropriately sized logical steps. | (12) Avoid vagueness. |
| (4) Put logical steps in linear sequence. | (13) Check the necessary details. |
| (5) Identify logical holes in an/your argument precisely. | (14) Complete the argument. |
| (6) Identify hidden assumptions. | (15) Do not assume what you should prove. |
| (7) Choose the fastest or clearest route (avoid meandering). | (16) Use definitions precisely/correctly. |
| (8) Do not include extraneous reasoning. | (17) Do not make unwarranted assumptions. |
| (9) Avoid arithmetic errors. | (18) Do not confuse implication with its converse. |