

Title of your manuscript

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This document is an author template. Bracketed text and the mathematical example are instructions or formatting demonstrations to replace before submission.

Abstract

Replace this paragraph with an abstract that states the research question, the method or argument, the principal findings, and their implications. Make the abstract understandable on its own. Define uncommon abbreviations and avoid citations unless essential. For a review, describe the scope, synthesis, and conclusions; for a perspective, state the position and the supporting argument. The journal website currently specifies no abstract word limit. An abstract of approximately 150 to 250 words is a useful working length, subject to any article-specific editorial instructions.

Keywords: [keyword one]; [keyword two]; [keyword three]; [add up to eight keywords]

1 Introduction

Explain the problem, its context, and why the question matters for intelligence, mathematics, society, or their intersection. Identify the gap in knowledge or reasoning and state the contribution precisely. Distinguish established knowledge from your own claims. Keep the account accessible to readers from the journal's other principal fields.

Cite sources consistently throughout the manuscript. The two references below demonstrate a book reference [1] and a journal reference with a DOI [2]; they do not substantiate the instructions in this template. Use the reference format shown here as the template default, or follow any later journal-specific instructions.

2 Methods or analytical framework

Explain the methods, assumptions, materials, data, or argumentative framework in enough detail for readers to assess and, where applicable, reproduce the work. Give relevant software versions, parameter choices, inclusion criteria, and sources. Theoretical papers may instead organize this section around definitions, assumptions, and the mathematical setting.

2.1 Definitions and notation

Define symbols at first use and use them consistently. Display and number equations that are referenced later. The following example only demonstrates equation layout:

$$f(x) = \frac{x^2}{2}, \quad x \in \mathbb{R}. \quad (1)$$

Here x is a real number and f maps real numbers to nonnegative real numbers. Replace this example with the definitions and equations required by your manuscript.

2.2 Reproducibility and research design

For empirical or computational work, explain the design, sampling, data processing, comparison conditions, and evaluation criteria. Report uncertainty where relevant. For theoretical or conceptual work, make the logical dependencies and scope of the assumptions explicit. Put extensive implementation details, supplementary derivations, or additional materials in an appendix or supplementary file when appropriate.

3 Results or main argument

Present findings or develop the main argument in a clear order. Separate evidence from interpretation. Use figures and tables when they make the reasoning easier to assess, and cite each one in the text before or near its placement. Figure 1 and Table 1 demonstrate presentation conventions; they contain no experimental findings.

Proposition 1. *For every real number x , the function defined in Equation (1) satisfies $f(x) \geq 0$, with equality if and only if $x = 0$.*

Proof. The square of a real number is nonnegative. Multiplication by $1/2$ preserves nonnegativity. The square is zero precisely when $x = 0$, which proves the claim. $\square$

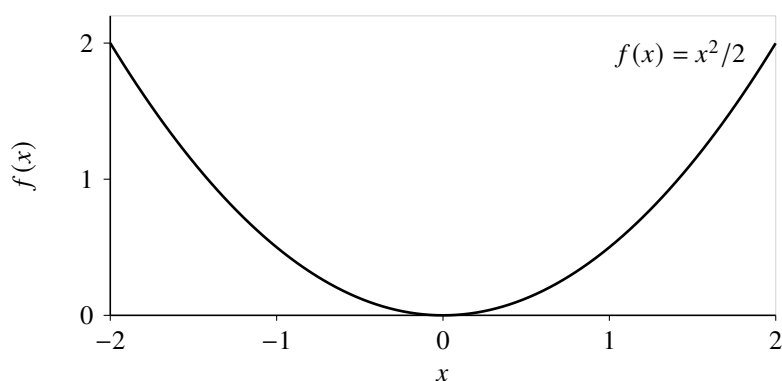


Figure 1: Illustrative graph of $f(x) = x^2/2$ on the interval $[-2, 2]$. This analytic curve demonstrates figure formatting and is not experimental data.

Table 1: Illustrative notation used in the mathematical example.

Symbol	Meaning	Domain or range
x	Input variable	Real numbers
$f(x)$	One half of the squared input	Nonnegative real numbers

4 Discussion

Explain what the findings or argument establish, how they relate to previous work, and where their implications apply. State material limitations, alternative interpretations, and unresolved questions. Avoid implying that a mathematical example, a simulation, or an observational association establishes an empirical or causal claim beyond its assumptions.

For reviews and perspectives, replace the methods and results headings with thematic sections appropriate to the article. Retain a clear account of evidence, reasoning, limitations, and conclusions. The template supplies formatting examples rather than a compulsory structure for every article type.

5 Conclusion

State the principal conclusion and its scope. Explain what the work adds and identify any next steps that follow from the results. Avoid introducing new evidence or claims here.

Acknowledgements

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Author contributions

[Describe each author's contribution where applicable. This section is provided as a useful reporting option.]

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Competing interests

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Data and code availability

[Provide repository links or persistent identifiers for relevant data and code, or explain access conditions and restrictions. If no data were generated or analyzed, or no research code was used, state this as applicable.]

69 **Ethics statement**

70 [Provide relevant approval body, reference, consent arrangements, or other ethics information. If ethics
71 approval is not applicable, explain this briefly.]

72 **Generative AI disclosure**

73 [Where relevant, identify the tool, version or access date, purpose, and scope of generative AI use.
74 Authors remain responsible for accuracy and attribution. Omit this section if it does not apply.]

75 **References**

- 76 [1] Knuth DE. *The TeXbook*. Reading, MA: Addison-Wesley; 1984. ISBN 978-0-201-13448-3.
- 77 [2] Turing AM. Computing machinery and intelligence. *Mind*. 1950;59(236):433–460. [https://doi.](https://doi.org/10.1093/mind/LIX.236.433)
78 [org/10.1093/mind/LIX.236.433](https://doi.org/10.1093/mind/LIX.236.433).

79 **A Additional material**

80 [Place supplementary proofs, technical details, additional tables, or supporting material here. Give
81 appendices descriptive titles and refer to them from the main text. Remove this appendix if it is not
82 required.]