

The House of Santa Claus

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1 Basics

Definition 1.1 (House of Santa Claus). The *House of Santa Claus* is the graph (V, E) , defined as follows:

$$V := \{1, \dots, 5\}$$

$$E := \{\{1, 2\}, \{1, 5\}, \{2, 3\}, \{2, 4\}, \{2, 5\}, \{3, 4\}, \{3, 5\}, \{4, 5\}\}$$

One can illustrate the House of Santa Claus as in Figure 1; more information on `TikZ` can be found in the documentation [3]. General information on `LATEX` can be found in the `LATEX Companion` [2].

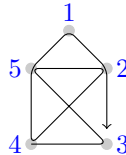


Figure 1: House of Santa Claus

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2 Properties of the House of Santa Claus

Theorem 2.1 (incompleteness theorem). *The House of Santa Claus is not complete.*

Proof. We use the notation from Definition 1.1. The House of Santa Claus is not a complete graph because the edge $\{1, 3\}$ is not contained in the House of Santa Claus. \square

3 Examples

Example 3.1.

- Here is an example

- ...and another one
- ...and another one

Exercise 3.2. Please do not forget to insert a few exercises – so that the participants can test their understanding of the topic.

References

- [1] C. Löh. Exercises in Academic Writing, 2017.
<https://loeh.app.uni-regensburg.de/seminars/eaw.pdf>
- [2] F. Mittelbach, M. Goossens, J. Braams, D. Carlisle, C. Rowley. *The L^AT_EX Companion*, second edition, Addison-Wesley, 2004.
- [3] T. Tantau. *The TikZ and PGF Packages*,
<http://www.ctan.org/tex-archive/graphics/pgf/base/doc/generic/pgf/pgfmanual.pdf>