

Communication for mathematics: Reading a mathematics paper

Introduction

Here we will read and analyse part of a maths paper based on the topic of series. The paper is written at a level you will be able to understand. The aim of this lesson is to learn to understand how the paper is written so that it develops its topic in a coherent and understandable way.

To help you develop an initial focus towards this read the section of the paper handed out and consider the following questions:

1. What main, fundamental aim does the author have of the paper? What is the purpose of the paper? Describe this in your own words as clearly and succinctly as possible.
2. What specific mathematics is the author using in his/her analysis? How does the author go about solving and/or proving his main aim?
3. Are there any mathematical presentation issues? For example,
 - Do any steps need justifying? If so, what justifying steps or comments would you make? If not, why would justifying steps not be needed?
 - Does the author define things that need defining? If not, how would you define these things?
 - Are symbols used correctly? If not, how would you use these correctly?
 - Are there any free-floating expressions? If so, how would you correct these?
 - Does each sentence start with a word? If not, how would you start the sentence?
 - If there are any arrow-type symbols used, are they used correctly?
 - If relevant, are proofs presented correctly?
 - If proofs are presented, what method of proof is being used?
 - Are there any layout or formatting issues? If so, how would you correct these?
 - Is the overall presentation of the text and mathematics readable? If not, how could the readability be improved?

4. Using the list of words below can you match a word to each paragraph numbered (1) to (5) in the text:
- identify the relevant phrases or sentences which illustrate your chosen word(s).
 - not all words below are relevant, and some paragraph may be describable by more than one word. If a word is not listed, feel free to use your own words.

Row	Column	Sum
n^{th}	k^{th}	Combinatorial formula
The author's main idea of the paper	Comparing and contrasting two things	Critical thinking. Critical argument
Summary	Illustrating a particular type of algebra (what kind of algebra?)	Identifying flaws
Application	Recapping, reminding repeating or restating	Explanation
Derivation	Example or counterexample	Description
Introduction section	Identifying advantages or disadvantages	Stating the method of proof (which method?)
Introductory sentence.	Background information	Suggesting a way to fix a flaw or problem
Identifying a pattern	Deriving or proving a formula	Justification