

Accessibility Considerations for Math Equations in Digital Documents

Math equations must be created in ways that allow screen readers and assistive technologies to interpret them accurately. Using images of equations or inaccessible formats can exclude users from understanding essential content. This guide provides best practices for ensuring mathematical content is accessible across Word, PowerPoint, Excel, and PDFs.

General Best Practices

- ☐ Avoid using images of equations. If unavoidable, provide a text-based equivalent or description.
- ☐ Use built-in equation editors that generate MathML or accessible formats (e.g., Word's Equation Editor).
- ☐ Ensure that math is readable in the logical order it should be spoken.
- ☐ Use clear and unambiguous notation (e.g., avoid confusing superscripts or nested fractions).
- ☐ When equations are complex, provide a plain-language explanation nearby.
- ☐ Avoid using special symbols copied from the web or equations pasted from PDFs.

Microsoft Word

Use Word's built-in Equation Editor (Insert → Equation) to create accessible math. Avoid copying equations as images or using third-party tools that don't support MathML or screen reader compatibility. All equations created with the editor are recognized by most assistive technologies.

PowerPoint Presentations

Use the built-in Equation Editor in PowerPoint (Insert → Equation). If you must use images for math, ensure alt text is added with a full textual equivalent. Keep in mind that reading order and contrast are especially important in slide design.

Excel Spreadsheets

While Excel is not typically used for displaying math equations, any explanatory equations in comments, headers, or adjacent cells should be typed using keyboard-friendly math notation. Avoid inserting screenshots of formulas. Use accessible cell formatting and descriptions.

PDFs

Equations in PDFs are only accessible if they were created accessibly in the source file (e.g., Word, LaTeX, or MathType with tagging support). Avoid scanned images of equations. Use tagged PDFs with math exported as MathML when possible. If exporting from LaTeX or Word, use accessibility-compliant plugins.

Supplementing with Plain Language

Even when equations are accessible, providing a plain-language summary or explanation of key formulas helps improve comprehension for all users. This is especially useful for complex formulas or introductory learning materials.