

CISC 102: Discrete Mathematics for Computing I

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Hazem Abbas
hazem.abbas@queensu.ca

Introduction to LaTeX

Slides are borrowed from Nobel Khandaker



What is LaTeX?

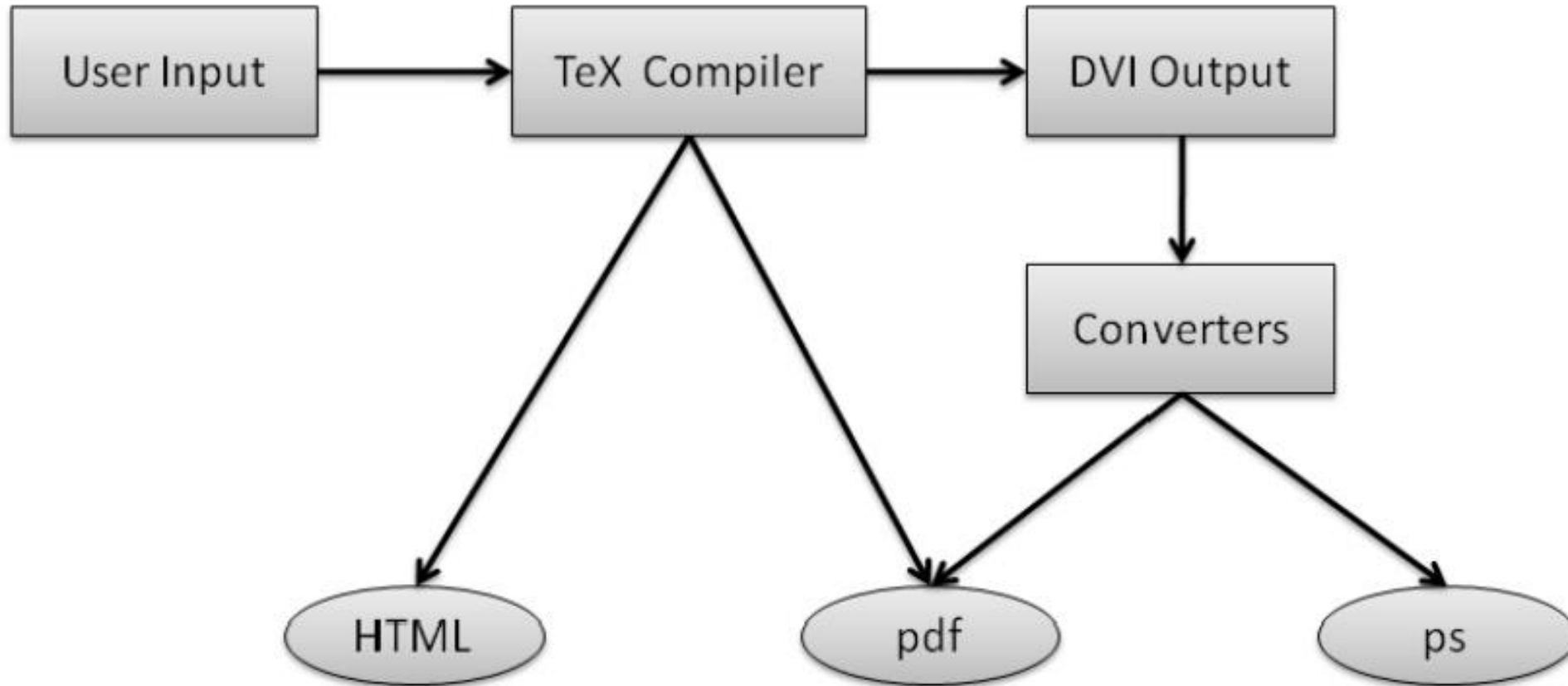
- LaTeX is a document preparation system for high-quality typesetting
- LaTeX is most often used to produce technical or scientific documents, but it can be used for almost any form of publishing



Why use LaTeX?

- Professional result
- Platform, version independent (Unix, Windows . . .)
- Pre-set standard formats (for paper, thesis . . .)
- Fast, professional math equations typesetting
- Freely available

Basic LaTeX Work Flow I



What Do You Need to Process a LaTeX Document?

LaTeX Editor

- Linux: Kile, Emacs
- Windows: TeXworks, TeXMaker, LyX
- Mac: TeXworks, LyX, Emacs

LaTeX Compiler

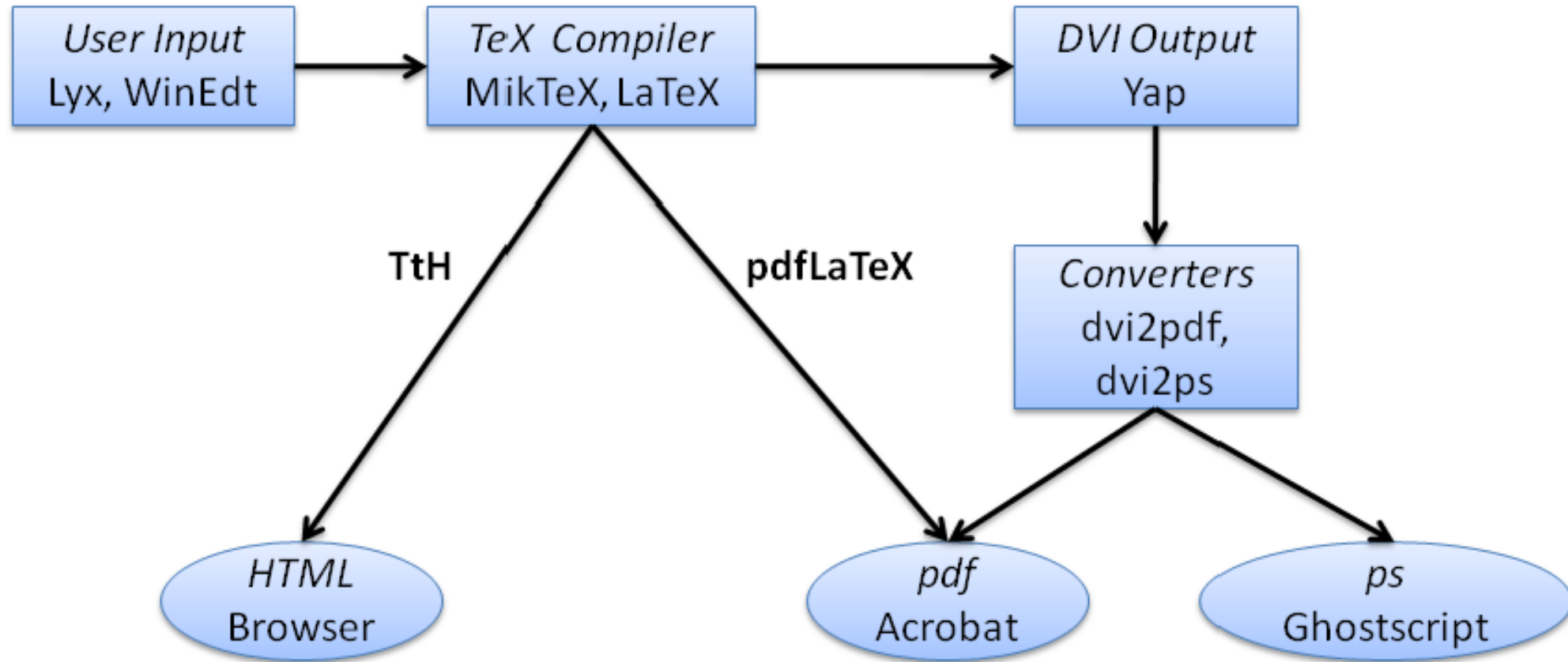
Linux: LaTeX, TexLive
Windows: MikTeX
Mac: TeXshop

LaTeX Output Viewer

PDF: xpdf, Foxit, Adobe Reader
PS: Ghostscript, GhostView
HTML: Web Browser



Basic LaTeX Work Flow II



Hello World in LaTeX

```
\documentclass [12pt,letterpaper]{article}  
%include packages here  
%usepackage{package}  
\begin{document}  
Hello world!  
\end{document}
```



Basic Formatting in LaTeX

- **Bold Text:** `\textbf{Bold Text }`
- *Italic Text:* `\emph{Italic Text }`
- Spacing:
 - Many spaces = one space
 - Use `\\` for newline
 - Hit return *twice* for a new paragraph
 - `\newpage`
- Comments: `% ...your comments here ...`
- Reserved Symbols: `# $ % ^ & _ { } ~ \`



Mathematical Equations in LaTeX

- Use `$... $` or `\begin{math} ... \end{math}` for include mathematical symbols, equations, etc.
- Subscript and superscripts — `x^2`: x^2 and `x_2`: x_2
- Fractions— `\frac{a}{b}` or `$a \over b$`: $\frac{a}{b}$
- Radical— `\sqrt{x}`: \sqrt{x}
- Many more symbols and operators are available

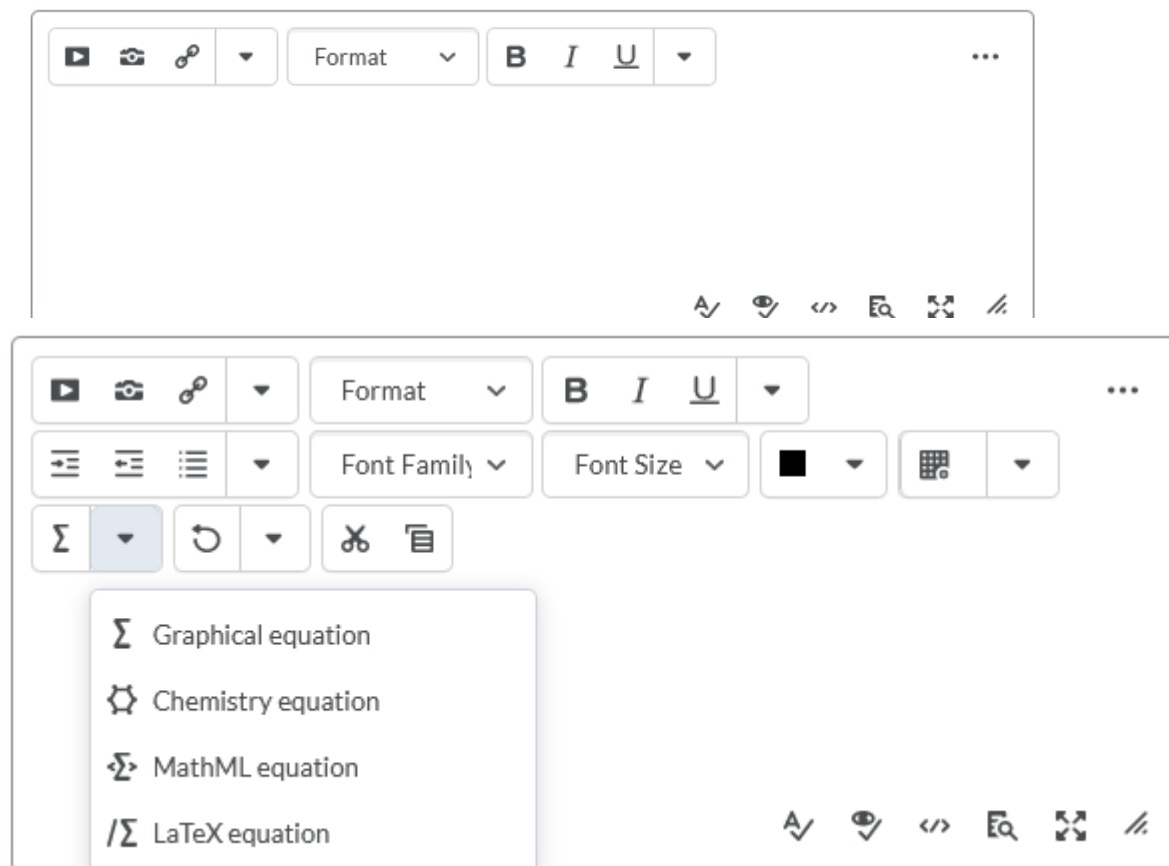


LaTeX on OnQ

Preview Question

When taking the question, it would appear as:

If $[|A| = 21, |B| = 19, |C| = 17, |A \cap B| = 9,]$
 $[|A \cap C| = 8, |B \cap C| = 7, |(A \cap B) \setminus C| = 6.]$ find $|A \cup B \cup C|$.

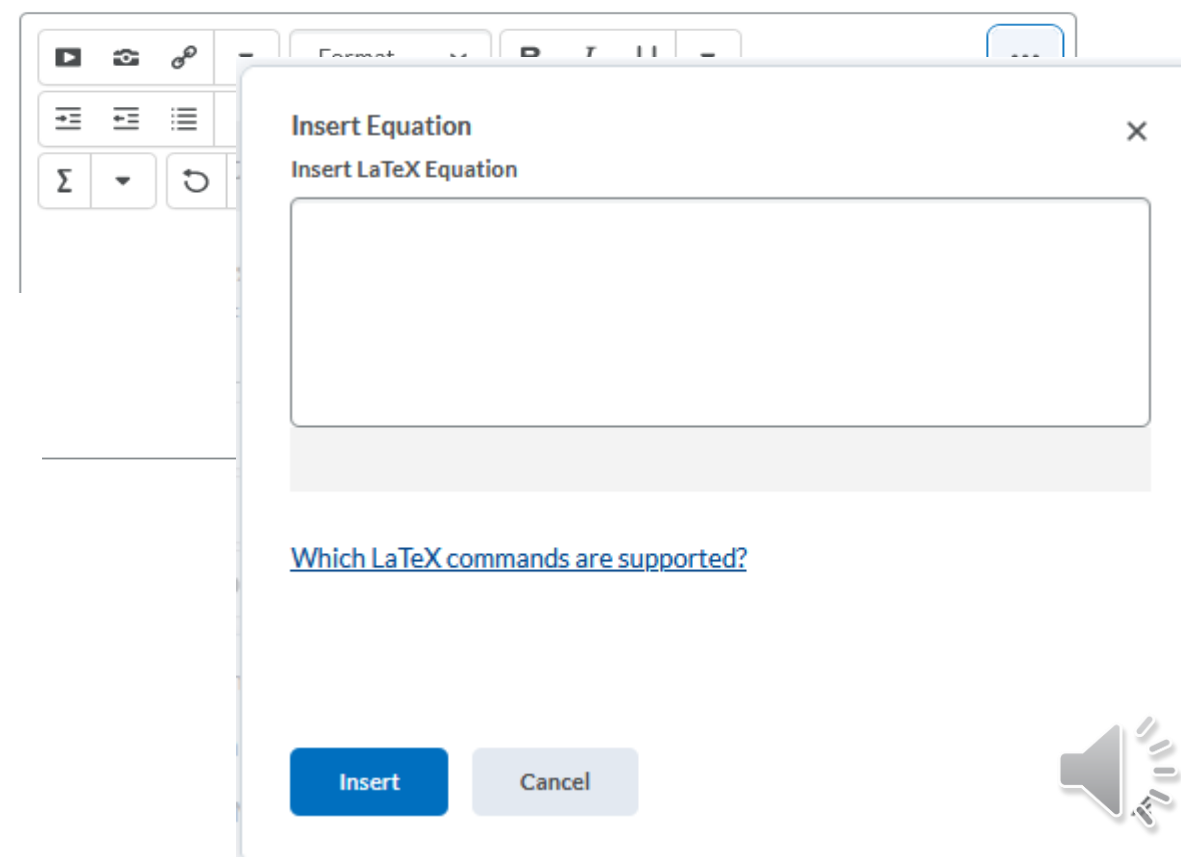


The screenshot shows the OnQ editor interface. At the top, there is a toolbar with icons for video, image, link, and a dropdown menu. Below this is a 'Format' dropdown and buttons for bold (B), italic (I), and underline (U). The main text area contains the question text. Below the text area is another toolbar with icons for list, list, list, a dropdown menu, 'Font Family' dropdown, 'Font Size' dropdown, a color picker, a grid icon, and a dropdown menu. At the bottom left, there is a 'Σ' button with a dropdown menu open, showing options: 'Graphical equation', 'Chemistry equation', 'MathML equation', and 'LaTeX equation'. At the bottom right, there are icons for undo, redo, source code, search, and other editing tools.

Preview Question

When taking the question, it would appear as:

If $[|A| = 21, |B| = 19, |C| = 17, |A \cap B| = 9,]$
 $[|A \cap C| = 8, |B \cap C| = 7, |(A \cap B) \setminus C| = 6.]$ find $|A \cup B \cup C|$.



The screenshot shows the OnQ editor interface with an 'Insert Equation' dialog box open. The dialog box has a title bar 'Insert Equation' and a close button (X). Inside the dialog, there is a section 'Insert LaTeX Equation' with a large text input area. Below the input area, there is a link 'Which LaTeX commands are supported?'. At the bottom of the dialog, there are two buttons: 'Insert' and 'Cancel'. The background shows the same editor interface as the previous screenshot, but the 'Insert Equation' dialog box is in the foreground.

LaTeX Resources

- More one LaTeX math symbols
<https://artofproblemsolving.com/wiki/index.php/LaTeX:Symbols>
- Getting Started with LaTeX
<https://www.maths.tcd.ie/~dwilkins/LaTeXPrimer/>
- LaTeX Quick Reference Card ([.pdf](#))
- [MikTeX](#) -- A Windows LaTeX Distro (Includes TeXworks, a LaTeX Frontend)
- [MacTeX](#) -- An OS X LaTeX Distro (Includes TeXworks and TeXShop, two LaTeX Frontends)
- [Texmaker](#) -- A cross-platform LaTeX editor (includes many nice features)
- [LyX](#) -- User Friendly LaTeX Frontend

Happy LaTeXing!

Next Time



What is a “proof”?