



Cistercian page numbers

Asked 2 years ago Modified today Viewed 547 times



10



For some context, I recently learned about [Cistercian numbering system](#). I'm loving it, and want to number the pages of my thesis with it.

Using tikz package, I can plot a 4 digit number with self made commands like `\cistercian{3751}`. The idea is to pass it the page number (padded with zeros) and draw it next to the page number in decimal. But I can't seem to be able to pass it the page numbers. The error is on line 74 when calling `\cistercianpagenumber`:

Missing character: There is no ; in font nullfont! ! Argument of `\XC@definec@lor` has an extra }.

From my researchs, it may come from the fact that page number should not be passed as an argument, or something else, I'm lost here...

I put all the code below. It is not yet able to plot the page numbers at the right position, but this can be done after. This problem must be solved before going in the presentation details.

Thank you for your help.

Léo

```
\documentclass[review]{article}
```

```
\usepackage{tikz}
```

```
\usepackage{ifthen}
```

```
\usepackage{xstring}
```

```
\usepackage{fmtcount}
```

```
\begin{document}
```

```
%Define macros for drawing every 0-9 numbers at unit place
```

```
\newcommand{\zero}{\draw[black, thick] (0,-0.5)--(0, 0.5)}
```

```
\newcommand{\one}{\draw[black, thick] (0,0.5)--(0.25, 0.5)}
```

```
\newcommand{\two}{\draw[black, thick] (0,0.25)--(0.25, 0.25)}
```

```
\newcommand{\three}{\draw[black, thick] (0,0.5)--(0.25, 0.25)}
```

```
\newcommand{\four}{\draw[black, thick] (0,0.25)--(0.25, 0.5)}
```

```
\newcommand{\five}{\one; \four;}
```

```
\newcommand{\six}{\draw[black, thick] (0.25,0.25)--(0.25, 0.5)}
```

```
\newcommand{\seven}{\one; \six;}
```

```
\newcommand{\eight}{\two; \six;}
```

```
\newcommand{\nine}{\one; \two; \six;}
```

```
%Define macros for drawing a number as a 1000, 100 or 10 digit place
```

```
\newcommand{\tens}[1]{\begin{scope}[yscale= 1,xscale=-1]; #1; \end{scope}}
```

```
\newcommand{\hundreds}[1]{\begin{scope}[yscale=-1]; #1; \end{scope}}
```

```
\newcommand{\thousands}[1]{\begin{scope}[yscale=-1,xscale=-1]; #1; \end{scope}}
```

```
%Draw the cistercian number using selfmade commands
\newcommand{\cistercianhard}[4]{%
\zero;%
#4;%
\tens{#3};%
\hundreds{#2};%
\thousands{#1};%
}

%From a number 0-9, returns the self made command corresponding to that number
\newcommand{\getnumber}[1]{%
\ifthenelse{\equal{#1}{0}}{\zero;}{}%
\ifthenelse{\equal{#1}{1}}{\one;}{}%
\ifthenelse{\equal{#1}{2}}{\two;}{}%
\ifthenelse{\equal{#1}{3}}{\three;}{}%
\ifthenelse{\equal{#1}{4}}{\four;}{}%
\ifthenelse{\equal{#1}{5}}{\five;}{}%
\ifthenelse{\equal{#1}{6}}{\six;}{}%
\ifthenelse{\equal{#1}{7}}{\seven;}{}%
\ifthenelse{\equal{#1}{8}}{\eight;}%
\ifthenelse{\equal{#1}{9}}{\nine;}%
}

%Draw Cistercian number from a 4 digit number
\newcommand{\cistercian}[1]{%
\zero;%
\StrChar{#1}{1}[\thou];%
\StrChar{#1}{2}[\hund];%
\StrChar{#1}{3}[\tens];%
\StrChar{#1}{4}[\unit];%
\thousands{\getnumber{\thou}};%
\hundreds{\getnumber{\hund}};%
\tens{\getnumber{\tens}};%
\getnumber{\unit};%
}

%Draw the Page number in Cistercian numerals
\newcommand{\cistercianpagenumber}{%
\begin{tikzpicture}%
\cistercian{\padzeroes[4]{\decimal{page}}};%
\end{tikzpicture}%
}

%Test of the last macro
\cistercianpagenumber

\end{document}
```

macros

numbering

page-numbering

page

[Edit tags](#)



Azireo

103 3

1 There's a free Cistercian numbers font: github.com/ctrlcctrlv/FRBCistercian – Thérèse Dec 15, 2021 at 20:11

1 Also github.com/TiroTypeworks/Clairvo – Thérèse Feb 14 at 0:31

3 Answers

Sorted by:

Highest score (default)





I prefer an implementation with `expl3`, which is a bit complicated by the mixture with `TikZ`.



```
\documentclass{article}
```

```
\usepackage{tikz}
```

```
%\usepackage{xparse} % not needed for LaTeX 2020-10-01 or later
```

```
%Define macros for drawing every 0-9 numbers at unit place
```

```
\NewDocumentCommand{\cistercianzero}{}{\draw[black, thick] (0,-0.5)--(0, 0.5)}
```

```
\NewDocumentCommand{\cistercianone}{}{\draw[black, thick] (0,0.5)--(0.25, 0.5)}
```

```
\NewDocumentCommand{\cisterciantwo}{}{\draw[black, thick] (0,0.25)--(0.25, 0.25)}
```

```
\NewDocumentCommand{\cistercianthree}{}{\draw[black, thick] (0,0.5)--(0.25, 0.25)}
```

```
\NewDocumentCommand{\cistercianfour}{}{\draw[black, thick] (0,0.25)--(0.25, 0.5)}
```

```
\NewDocumentCommand{\cistercianfive}{}{\cistercianone; \cistercianfour;}
```

```
\NewDocumentCommand{\cisterciansix}{}{\draw[black, thick] (0.25,0.25)--(0.25, 0.5)}
```

```
\NewDocumentCommand{\cistercianseven}{}{\cistercianone; \cisterciansix;}
```

```
\NewDocumentCommand{\cistercianeight}{}{\cisterciantwo; \cisterciansix;}
```

```
\NewDocumentCommand{\cisterciannine}{}{\cistercianone; \cisterciantwo; \cisterciansix;}
```

```
\NewDocumentCommand{\cisterciandigit}{mmm}{%
```

```
  % #1 = xscale, #2 = yscale, #3 = digit
```

```
  \begin{scope}[xscale=#1,yscale=#2] #3; \end{scope}%
```

```
}
```

```
% units: {1}{1}{digit}
```

```
% tens: {-1}{1}{digit}
```

```
% hundreds: {1}{-1}{digit}
```

```
% thousands: {-1}{-1}{digit}
```

```
\ExplSyntaxOn
```

```
\NewDocumentCommand{\cistercian}{0{1}m}
```

```
{% force digits; #1 is the optional scale
```

```
  \azireo_cistercian:ne { #1 } { \int_to_arabic:n { #2 } }
```

```
}
```

```
\cs_new_protected:Nn \azireo_cistercian:nn
```

```
{% pad to four digits
```

```
  \__azireo_cistercian_split:ne { #1 } { \prg_replicate:nn
```

```
{4-\tl_count:n{#2}}{0} #2 }
```

```
}
```

```
\cs_generate_variant:Nn \azireo_cistercian:nn { ne }
```

```
\cs_new_protected:Nn \__azireo_cistercian_split:nn
```

```
{% gather the digits
```

```
  \__azireo_cistercian_split:nNNNN { #1 } #2
```

```
}
```

```
\cs_generate_variant:Nn \__azireo_cistercian_split:nn { ne }
```

```

\cs_new_protected:Nn \__azireo_cistercian_split:nNNNN
{% the digit are used in reverse
  \__azireo_cistercian_print:nnnnn { #1 }
  { \azireo_cistercian_digit:n { #5 } }
  { \azireo_cistercian_digit:n { #4 } }
  { \azireo_cistercian_digit:n { #3 } }
  { \azireo_cistercian_digit:n { #2 } }
}
\cs_new_protected:Nn \azireo_cistercian_digit:n
{% choose the representation for the digit
  \int_case:nn { #1 }
  {
    {%0}{\cistercianzero} % the base is already present, no need to repeat it
    {1}{\cistercianone}
    {2}{\cisterciantwo}
    {3}{\cistercianthree}
    {4}{\cistercianfour}
    {5}{\cistercianfive}
    {6}{\cisterciansix}
    {7}{\cistercianseven}
    {8}{\cistercianeight}
    {9}{\cisterciannine}
  }
}
\cs_new_protected:Nn \__azireo_cistercian_print:nnnnn
{
  \begin{tikzpicture}[scale=#1]
  \cistercianzero; % base
  \cisterciandigit{ 1}{ 1}{#2}; % units
  \cisterciandigit{-1}{ 1}{#3}; % tens
  \cisterciandigit{ 1}{-1}{#4}; % hundreds
  \cisterciandigit{-1}{-1}{#5}; % thousands
  \end{tikzpicture}
}

\ExplSyntaxOff

\renewcommand{\thepage}{\cistercian{\arabic{page}}} % this will print page
numbers in Cistercian numerals

\begin{document}

Page: \cistercian{\arabic{page}}

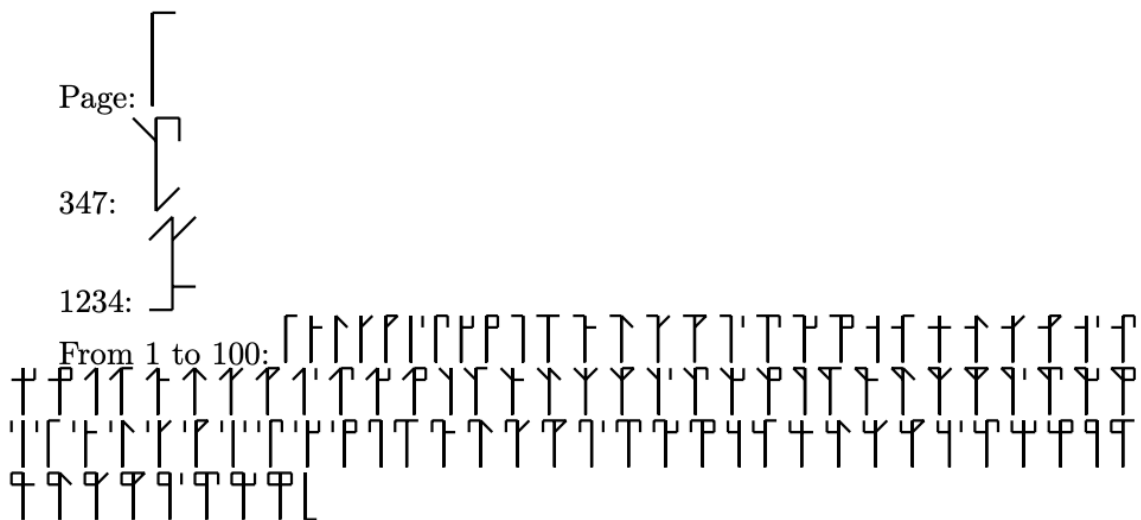
347: \cistercian{347}

1234: \cistercian{1234}

\ExplSyntaxOn
From~1~to~100:~\int_step_inline:nn { 100 } { \cistercian[0.5]{#1}~ }
\ExplSyntaxOff

```

`\end{document}`



Be prepared that your thesis will be rejected. ;-)

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answered Nov 25, 2020 at 21:06



egreg

1.0m

126

2526

4070



Wow! Thanks! Sleeping has never been so productive! ;) It seems to work perfectly, however, not on my computer... I'm not new to latex, but I've never done any macros before, and don't really understand what's going on here. Whats expl3? I've got errors on Overleaf, Writing Studio and Texmaker... On line 8 `\NewDocumentCommand` gives: Undefined control sequence. Missing `\begin{document}` – **Azireo** Nov 26, 2020 at 9:04



@Azireo Uncomment the line with `xparse` . – **egreg** Nov 26, 2020 at 9:20



You're a genius! :) – **Azireo** Nov 26, 2020 at 10:44



If the thesis is rejected the submitter has proof of their lack of humor. How then would they judge his work? But then I was an art major, so I never had his problem... – **hsmyers** Dec 1, 2020 at 19:41

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@hsmyers Thesis committees rarely have a sense of humor. Faculty secretaries even less and they use rulers... – **egreg** Dec 1, 2020 at 20:45

|



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I recently implemented this in my own thesis based on answer provided by @egreg. However, I realized that referring back to a specific page will be a bother for most people. Thus I implemented it in a way that each page has two different numbers in it. I have Arabic numerals at the top right/left (for odd/even numbered pages) ([based on answer to this post](#)) and Cistercian numeral at the bottom center of each page.

This is what the relevant part of the code looks like:

```
%% Define the packages needed
\usepackage{tikz}
\usepackage{xparse} % not needed for LaTeX 2020-10-01 or later

%Define macros for drawing every 0-9 numbers at unit place
\NewDocumentCommand{\cistercianzero}{}{\draw[black, thick] (0,-0.5)--(0, 0.5)}
\NewDocumentCommand{\cistercianone}{}{\draw[black, thick] (0,0.5)--(0.25, 0.5)}
\NewDocumentCommand{\cisterciantwo}{}{\draw[black, thick] (0,0.25)--(0.25,
0.25)}
\NewDocumentCommand{\cistercianthree}{}{\draw[black, thick] (0,0.5)--(0.25,
0.25)}
\NewDocumentCommand{\cistercianfour}{}{\draw[black, thick] (0,0.25)--(0.25,
0.5)}
\NewDocumentCommand{\cistercianfive}{}{\cistercianone; \cistercianfour;}
\NewDocumentCommand{\cisterciansix}{}{\draw[black, thick] (0.25,0.25)--(0.25,
0.5)}
\NewDocumentCommand{\cistercianseven}{}{\cistercianone; \cisterciansix;}
\NewDocumentCommand{\cistercianeight}{}{\cisterciantwo; \cisterciansix;}
\NewDocumentCommand{\cisterciannine}{}{\cistercianone; \cisterciantwo;
\cisterciansix;}

\NewDocumentCommand{\cisterciandigit}{mmm}{%
  % #1 = xscale, #2 = yscale, #3 = digit
  \begin{scope}[xscale=#1,yscale=#2] #3; \end{scope}%
}
% units: {1}{1}{digit}
% tens: {-1}{1}{digit}
% hundreds: {1}{-1}{digit}
% thousands: {-1}{-1}{digit}

%% Define the new syntax
\ExplSyntaxOn
\NewDocumentCommand{\cistercian}{O{1}m}
{% force digits; #1 is the optional scale
  \azireo_cistercian:ne { #1 } { \int_to_arabic:n { #2 } }
}
\cs_new_protected:Nn \azireo_cistercian:nn
{% pad to four digits
  \__azireo_cistercian_split:ne { #1 } { \prg_replicate:nn
{4-\tl_count:n{#2}}}{0} #2 }
}
\cs_generate_variant:Nn \azireo_cistercian:nn { ne }
```



```

\cs_new_protected:Nn \__azireo_cistercian_split:nn
{
  {% gather the digits
    \__azireo_cistercian_split:nNNNN { #1 } #2
  }
}

\cs_generate_variant:Nn \__azireo_cistercian_split:nn { ne }

\cs_new_protected:Nn \__azireo_cistercian_split:nNNNN
{
  {% the digit are used in reverse
    \__azireo_cistercian_print:nnnnn { #1 }
    { \azireo_cistercian_digit:n { #5 } }
    { \azireo_cistercian_digit:n { #4 } }
    { \azireo_cistercian_digit:n { #3 } }
    { \azireo_cistercian_digit:n { #2 } }
  }
}

\cs_new_protected:Nn \azireo_cistercian_digit:n
{
  {% choose the representation for the digit
    \int_case:nn { #1 }
    {
      {%0}{\cistercianzero} % the base is already present, no need to repeat it
      {1}{\cistercianone}
      {2}{\cisterciantwo}
      {3}{\cistercianthree}
      {4}{\cistercianfour}
      {5}{\cistercianfive}
      {6}{\cisterciansix}
      {7}{\cistercianseven}
      {8}{\cistercianeight}
      {9}{\cisterciannine}
    }
  }
}

\cs_new_protected:Nn \__azireo_cistercian_print:nnnnn
{
  \begin{tikzpicture}[scale=#1]
    \cistercianzero; % base
    \cisterciandigit{ 1}{ 1}{#2}; % units
    \cisterciandigit{-1}{ 1}{#3}; % tens
    \cisterciandigit{ 1}{-1}{#4}; % hundreds
    \cisterciandigit{-1}{-1}{#5}; % thousands
  \end{tikzpicture}
}

\ExplSyntaxOff

%% Define a new counter for the pages
\newcounter{chappage}[chapter]% chappage is slave to chapter
\renewcommand{\thechappage}{\stepcounter{chappage}\arabic{chappage}}

\usepackage{fancyhdr}% http://ctan.org/pkg/fancyhdr
\fancypagestyle{plain}{% 'plain' page style (used for first page of chapter)
  \fancyhf{}% clear all header and footer fields
  \renewcommand{\headrulewidth}{0pt}% no header rule
  \renewcommand{\footrulewidth}{0pt}% footer rule
  \fancyhead[R0]{\thechapter-\thechappage}%

```

```
%\fancyhead[LE,R0]{\thechapter-\thechappage}%
\fancyfoot[C]{\cistercian{\thepage}}
%\fancyfoot[C]{\thepage}
}
% Regular 'fancy' page style
\fancyhf{}% clear all header and footer fields
\fancyhead[LE,R0]{\thechapter-\thechappage}
\fancyfoot[C]{\cistercian{\thepage}}
%\fancyfoot[C]{\thepage}
\renewcommand{\headrulewidth}{0.1pt}% header rule
\renewcommand{\footrulewidth}{0pt}% footer rule
\pagestyle{fancy}
```

If you copy and paste this part right before `\begin{document}` , it works fine.

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answered Jul 26, 2021 at 23:14



Ramiz

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This post is hidden. It was [deleted](#) 1 hour ago by the post author.

In several pages of my article, I have a series of large tables that extend to the bottom of the page and are combined with page numbers. I want to remove the page number only in these pages. How should I do this?

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answered 1 hour ago



amir_su

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New contributor

Comments disabled on deleted / locked posts / reviews