The **graphpap** package*

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\texttt{\textbackslash graphpaper}(⟨N⟩)(⟨X,Y⟩)(⟨DX,DY⟩) Makes a grid with left-hand corner at (⟨X,Y⟩), extending (⟨DX,DY⟩) units in the X and Y directions, where the lines are \textit{N} units apart. Every fifth line is thick and is numbered. The default value of \textit{N} is 10. The arguments must all be integers.

First, we define three counters. The first two are defined as raw TeX counters since multiplication and division must be performed in them.

\begin{verbatim}
\newcount\@gridx \newcount\@gridy \newcounter{@grid}
\end{verbatim}

Next we define the following commands to draw vertical and horizontal grids. The “nonum” commands just draw the grids; the other commands also print numbers. All the arguments must be integers.

**VERTICAL GRIDS**

\texttt{\textbackslash@vgrid}(⟨xpos,ypos⟩){⟨xincrement⟩} \{⟨number-of-lines⟩} \{⟨length-of-lines⟩

\texttt{\textbackslash nonumvgrid}(⟨xpos,ypos⟩){⟨xincrement⟩} \{⟨number-of-lines⟩} \{⟨length-of-lines⟩

**HORIZONTAL GRIDS**

\texttt{\textbackslash hgrid}(⟨xpos,ypos⟩){⟨yincrement⟩} \{⟨number-of-lines⟩} \{⟨length-of-lines⟩

\texttt{\textbackslash nonumhgrid same as \textbackslash hgrid but no numbers drawn}

\begin{verbatim}
\def\@vgrid(#1,#2)#3#4#5{\setcounter{@grid}{#1}\
\multiput(#1,#2)(#3,0){#4}{\line(0,1){#5}}\multiput(#1,#2)(#3,0){#4}{\@vgridnumber{#3}}}
\def\@vgridnumber#1{\makebox(0,0)[t]{\shortstack{\rule{0pt}{10pt}\\\arabic{@grid}}}\addtocounter{@grid}{#1}}
\end{verbatim}

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\def\@nonumvgrid(#1,#2)#3#4#5{% 
\multiput(#1,#2)(#3,0){#4}{\line(0,1){#5}}
\def\@hgrid(#1,#2)#3#4#5{% 
\setcounter{@grid}{#2} 
\multiput(#1,#2)(0,#3){#4}{\line(1,0){#5}} 
\multiput(#1,#2)(0,#3){#4}{\@hgridnumber{#3}}
\def\@hgridnumber#1{% 
\makebox(0,0)[r]{\arabic{@grid}\hspace{10pt}}% 
\addtocounter{@grid}{#1}}
\def\@nonumhgrid(#1,#2)#3#4#5{% 
\multiput(#1,#2)(0,#3){#4}{\line(1,0){#5}}
}

Finally, \graphpaper is defined in a straightforward way in terms of the commands above.

\graphpaper
\newcommand\graphpaper[1][10]{\leavevmode\@grid{#1}}
\@grid
\def\@grid#1(#2,#3)#4{%\@grid@i{#1}{#2}{#3}(}
\@grid@i
\def\@grid@i#1#2#3(#4,#5){% 
\@tempcnta=#4\relax 
\divide\@tempcnta#1\relax 
\advance\@tempcnta1\relax 
{\thinlines\@nonumvgrid(#2,#3){\@tempcnta}{#5} \@tempcnta#4\relax 
\divide\@tempcnta5\relax 
\divide\@tempcnta#1\relax 
\@tempcntb5\relax 
\divide\@tempcntb#1\relax 
\@tempcntb#2,#3}{\@tempcnta}{#5} \@tempcnta#5\relax 
\divide\@tempcnta5\relax 
\divide\@tempcnta#1\relax 
\@tempcntb#2,#3}{\@tempcnta}{#4} \@tempcnta#5\relax 
\divide\@tempcnta5\relax 
\divide\@tempcnta#1\relax 
\@tempcntb#2,#3}{\@tempcnta}{#4} \@tempcnta#5\relax 
\divide\@tempcnta5\relax 
\divide\@tempcnta#1\relax 
\@tempcntb#2,#3}{\@tempcnta}{#4}}% 
\@grid@i}}