The **graphpap** package[*]

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\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 *N* units apart. Every fifth line is thick and is numbered. The default value of *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.

```
 1 ⟨*package⟩
 2 % \newcount\@gridx% now  (\@tempcnta)
 3 % \newcount\@gridy% now  (\@tempcntb)
 4 % \newcounter{@grid}
 5 \let\c@@grid\count@
```

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

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

HORIZONTAL GRIDS

\@hgrid(⟨*xpos,ypos*⟩){⟨*yincrement*⟩}{⟨*number-of-lines*⟩}{⟨*length-of-lines*⟩}
\@nonumhgrid same as \@hgrid but no numbers drawn

```
 6 \def\@vgrid(#1,#2)#3#4#5{%
 7   \setcounter{@grid}{#1}%
 8   \multiput(#1,#2)(#3,0){#4}{\line(0,1){#5}}%
 9   \multiput(#1,#2)(#3,0){#4}{\@vgridnumber{#3}}}

10 \def\@vgridnumber#1{%
11   \makebox(0,0)[t]{%
12     \shortstack{\rule{0pt}{10pt}\\\arabic{@grid}}}%
13   \addtocounter{@grid}{#1}}

14 \def\@nonumvgrid(#1,#2)#3#4#5{%
15   \multiput(#1,#2)(#3,0){#4}{\line(0,1){#5}}}

16 \def\@hgrid(#1,#2)#3#4#5{%
17   \setcounter{@grid}{#2}%
18   \multiput(#1,#2)(0,#3){#4}{\line(1,0){#5}}%
19   \multiput(#1,#2)(0,#3){#4}{\@hgridnumber{#3}}}

20 \def\@hgridnumber#1{%
21   \makebox(0,0)[r]{\arabic{@grid}\hspace{10pt}}%
22   \addtocounter{@grid}{#1}}

23 \def\@nonumhgrid(#1,#2)#3#4#5{%
24   \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

```
25 \newcommand\graphpaper[1][10]{\leavevmode\@grid{#1}}
```

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[*]This file has version number v1.0c, last revised 1994/08/09.

`\@grid`

```
26 \def\@grid#1(#2,#3)#4{\@grid@i{#1}{#2}{#3}()}
```

`\@grid@i`

```
27 \def\@grid@i#1#2#3(#4,#5){%
28   \@tempcnta=#4\relax
29   \divide\@tempcnta#1\relax
30   \advance\@tempcnta1\relax
31    {\thinlines\@nonumvgrid(#2,#3){#1}{\@tempcnta}{#5}
32     \@tempcnta#4\relax
33     \divide\@tempcnta5\relax
34     \divide\@tempcnta#1\relax
35     \advance\@tempcnta1\relax
36     \@tempcntb5\relax
37     \multiply\@tempcntb#1\relax
38     \thicklines\@vgrid(#2,#3){\@tempcntb}{\@tempcnta}{#5}
39     \@tempcnta#5\relax
40     \divide\@tempcnta #1\relax
41     \advance\@tempcnta1\relax
42     \thinlines\@nonumhgrid(#2,#3){#1}{\@tempcnta}{#4}
43     \@tempcnta#5\relax
44     \divide\@tempcnta5\relax
45     \divide\@tempcnta#1\relax
46     \advance\@tempcnta1\relax
47     \thicklines\@hgrid(#2,#3){\@tempcntb}{\@tempcnta}{#4}}%
48   \ignorespaces}
49 ⟨/package⟩
```