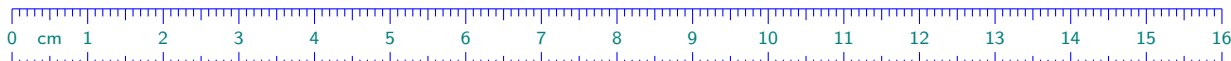


The **fgruler** package

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1 Introduction

The **fgruler** is an abbreviation for the *foreground ruler*. This package draws horizontal and vertical rulers on the foreground of every (or a given) page at absolute position. In this way, you can check the page layout dimensions.

Besides, you can draw various rulers in the text, too.

The **fgruler** package requires the services of the following packages: **kvoptions**, **etoolbox**, **xcolor**, **graphicx**, **eso-pic**.

2 Loading package

Load the package with

```
\usepackage[options]{fgruler}
```

or

```
\usepackage{fgruler}
\setfgruler{options}
```

The `\setfgruler` command is usable in the `document` environment, too.

3 Options

By default, the **fgruler** package draws a square ruler on the foreground of every page. The following package options set the parameters of these rulers.

`unit=`*unit*

Ruler unit. The *unit* legal values:

`cm` Metric ruler (centimeter). Default value.

`in` English ruler (inch).

`type=`*type name*

Origin, directions and lengths of the ruler. The *type name* legal values:

`upperleft` Default value. Origin: upper left corner of the paper. Directions: down and right. Lengths: paper sizes. See 7.1 example.

`upperright` Origin: upper right corner of the paper. Directions: down and left. Lengths: paper sizes. See 7.3 example.

`lowerleft` Origin: lower left corner of the paper. Directions: up and right. Lengths: paper sizes. See 7.4 example.

lowerright Origin: lower right corner of the paper. Directions: up and left. Lengths: paper sizes. See 7.5 example.

upperleftT Origin: upper left corner of the text area. Directions: down and right. Lengths: text area sizes. See 7.12 example.

upperrightT Origin: upper right corner of the text area. Directions: down and left. Lengths: text area sizes. See 7.13 example.

lowerleftT Origin: lower left corner of the text area. Directions: up and right. Lengths: text area sizes. See 7.14 example.

lowerrightT Origin: lower right corner of the text area. Directions: up and left. Lengths: text area sizes. See 7.15 example.

alldges There are rulers on all edges of the paper. Top ruler origin: upper left corner of the paper (direction: right). Bottom ruler origin: lower left corner of the paper (direction: right). Left ruler origin: upper left corner of the paper (direction: down). Right ruler origin: upper right corner of the paper (direction: down). Lengths: paper sizes. See 7.10 example.

alldges* It is similar to **alldges** option, but bottom ruler origin is lower right corner of the paper (direction: left), and left ruler origin is lower left corner of the paper (direction: up). See 7.11 example.

alldgesT It is similar to **alldges** option, but on the edges of the text area. See 7.16 example.

alldgesT* It is similar to **alldges*** option, but on the edges of the text area. See 7.17 example.

none Not drawing ruler.

user Each $\langle unit \rangle$ – $\langle type name \rangle$ pair activates an `\fgrulertype{ $\langle unit \rangle$ }{ $\langle type name \rangle$ }` command. After `\fgrulerdefuser{ $\langle unit \rangle$ }{ $\langle code \rangle$ }` the expansion of `\fgrulertype{ $\langle unit \rangle$ }{ $\langle user \rangle$ }` is $\langle code \rangle$, which determines the effect of this option. See 7.18–7.23 examples.


hshift= $\langle length \rangle$
Horizontal shift of the ruler, if the $\langle type name \rangle$ is **upperleft**, **lowerleft**, **upperright**, or **lowerright**. The shift direction is right, if the $\langle type name \rangle$ is **upperleft** or **lowerleft**. The shift direction is left, if the $\langle type name \rangle$ is **upperright** or **lowerright**. Default: **hshift=0cm**. See 7.6–7.9 examples.

vshift= $\langle length \rangle$
Vertical shift of the ruler, if the $\langle type name \rangle$ is **upperleft**, **lowerleft**, **upperright**, or **lowerright**. The shift direction is down, if the $\langle type name \rangle$ is **upperleft** or **upperright**. The shift direction is up, if the $\langle type name \rangle$ is **lowerleft** or **lowerright**. Default: **vshift=0cm**. See 7.6–7.9 examples.

color= $\langle color name \rangle$
Ruler color (see **xcolor** package). Default: **color=black**. See 7.2 example.

numsep= $\langle length \rangle$
Separation between number and ruler. Default: **numsep=3pt**.

markthick= $\langle length \rangle$
Mark thickness. Default: **markthick=0.4pt**.

marklength= $\langle length \rangle$
Mark length at integer units (see the red marks):  Default: **marklength=2mm**. See the length of the other marks in Section 6.

numfont= $\langle font type \rangle$
Number font type. Default: **numfont=\scriptsize\sffamily**. You can use this option only in `\setfgruler` command.

showframe or **showframe=true**
It draws visible frames for the text and margin area, and lines for the head and foot. Their color and thickness are determined by the **color** and the **markthick** options. See 7.2 example.

showframe=false
It deactivates the **showframe** option.

nonefgrulers

It kills all of the rulers on the foreground, including also those, which are generated by `\fgruler` (see Section 4). But the rulers, which were drawn by `\ruler` and `\squareruler` (see Section 5), do not disappear. Furthermore it deactivates the `showframe` option, too. In this case the `fgruler` package does not load the `eso-pic` package. This option works only in preamble.

It is recommended to use in two cases:

- To draw rulers only in text, there is no need for the checking function.
- To halt the checking function temporarily.

The `type=none` is not identical with `nonefgrulers` option. The differences:

- `type=none` does not kill the `\fgruler` command and the `showframe` option.
- `type=none` is alterable in any point of the document.
- `type=none` works in document environment, too.
- The `fgruler` package loads the `eso-pic` package, if you use the `type=none` option without `nonefgrulers`.

4 Drawing square rulers on the foreground of a given page

`\fgruler[<unit>]{<type name>}{<hshift>}{<vshift>}`

It draws a square ruler on the foreground of that page, where this command is expanded. You can use more `\fgruler` commands in the same page.

The package options (see Section 3) also work on this command, except for `unit`, `type`, `hshift` and `vshift`, since these are the parameters of the `\fgruler`.

If you use `nonefgrulers` option in preamble, then this command is effectless.

<unit> options:

- `cm` Metric ruler (centimeter). Default option.
- `in` English ruler (inch).

<type name> parameters:

- `upperleft` Origin: upper left corner. Directions: down and right.
- `upperright` Origin: upper right corner. Directions: down and left.
- `lowerleft` Origin: lower left corner. Directions: up and right.
- `lowerright` Origin: lower right corner. Directions: up and left.

<hshift> Horizontal shift. The shift direction is right, if the *<type name>* is `upperleft` or `lowerleft`, otherwise it is left.

<vshift> Vertical shift. The shift direction is down, if the *<type name>* is `upperleft` or `upperright`, otherwise it is up.

Example: `\fgruler[in]{upperright}{1in}{2.5in}`

5 Drawing rulers in the text

`\ruler[<unit>]{<type name>}{<length>}`

It draws a horizontal or a vertical ruler. The bottom of the ruler is aligned to the baseline of the surrounding text. The package options (see Section 3) do not work on this command.

<unit> options:


- `cm` Metric ruler (centimeter). Default option.
- `in` English ruler (inch).

<type name> parameters:

- `downright` Direction: down. The numbers are on the right side.
- `downleft` Direction: down. The numbers are on the left side.
- `upright` Direction: up. The numbers are on the right side.
- `upleft` Direction: up. The numbers are on the left side.

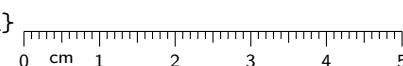
`rightdown` Direction: right. The numbers are on the down side.
`rightup` Direction: right. The numbers are on the up side.
`leftdown` Direction: left. The numbers are on the down side.
`leftup` Direction: left. The numbers are on the up side.

`<length>` Ruler length.

Example: `\ruler{rightdown}{5cm}` 

`\ruler*[{<unit>}]{<type name>}{<length>}`

It works like `\ruler`, but the top of the ruler is aligned to the baseline of the surrounding text.

Example: `\ruler*{rightdown}{5cm}` 

`\squareruler[{<unit>}]{<type name>}{<width>}{<height>}`

It draws a square ruler. The bottom of the square ruler is aligned to the baseline of the surrounding text. The package options (see Section 3) do not work on this command.

`<unit>` options:

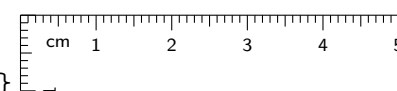
`cm` Metric ruler (centimeter). Default option.
`in` English ruler (inch).

`<type name>` parameters:

`upperleft` Directions: down and right.
`upperright` Directions: down and left.
`lowerleft` Directions: up and right.
`lowerright` Directions: up and left.

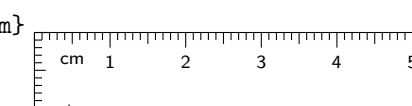
`<width>` Square ruler width.

`<height>` Square ruler height.

Example: `\squareruler{upperleft}{5cm}{1cm}` 

`\squareruler*[{<unit>}]{<type name>}{<width>}{<height>}`

It works like `\squareruler`, but the top of the square ruler is aligned to the baseline of the surrounding text.

Example: `\squareruler*{upperleft}{5cm}{1cm}` 

`\rulerparams{<markthick>}{<numfont>}{<color>}{<marklength>}{<numsep>}`

It sets the parameters of the rulers, which are drawn by `\ruler` or `\squareruler`. If an argument is empty, then that parameter will not be changed.

`<markthick>` Mark thickness. Default: 0.4pt

`<numfont>` Number font type. Default: `\scriptsize\sffamily`

`<color>` Ruler line color. Default: `black`

`<marklength>` Mark length at integer units. Default: 2mm

`<numsep>` Separation between number and ruler. Default: 3pt


For example, `\rulerparams{}{}{red}{}{}` changes the ruler color to red.

`\rulerparamsfromfg`

It sets the ruler parameters from the actual foreground ruler parameters.

`\rulernorotatenum`

By default, the numbers of the vertical rulers (which were generated by `\ruler` or `\squareruler`) are rotated by 90°. It kills this action. This command is usable only in `document` environment.

Example: `{\rulernorotatenum\ruler{upright}{1cm}}` 

`\rulerrotatenum`

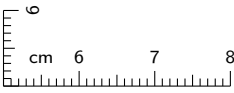
After `\rulernorotatenum`, it reactivates the number rotating. This command is usable only in `document` environment.

6 Additional setting commands

The following commands can work on all of the rulers, which are drawn by `fgruler` package.

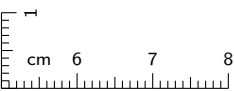
`\fgrulerstartnum{<num>}`

The `<num>` is a nonnegative integer, which will be the starting number on the horizontal and vertical rulers. Default: `\fgrulerstartnum{0}`

Example: `{\fgrulerstartnum{5}\squareruler{lowerleft}{3cm}{1cm}}` 

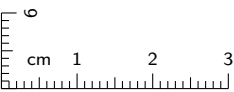
`\fgrulerstartnumh{<num>}`

The `<num>` is a nonnegative integer, which will be the starting number on the horizontal rulers. Default: `\fgrulerstartnumh{0}`

Example: `{\fgrulerstartnumh{5}\squareruler{lowerleft}{3cm}{1cm}}` 


`\fgrulerstartnumv{<num>}`

The `<num>` is a nonnegative integer, which will be the starting number on the vertical rulers. Default: `\fgrulerstartnumv{0}`

Example: `{\fgrulerstartnumv{5}\squareruler{lowerleft}{3cm}{1cm}}` 

`\fgrulernoborderline`

By default, there is a borderline on one side of the ruler. It disappears by this command.

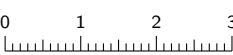
Example: `{\fgrulernoborderline\ruler{rightup}{3cm}}` 

`\fgrulerborderline`

After `\fgrulernoborderline`, it reactivates the previous default effect.

`\fgrulercaptioncm{<caption>}`

Unit caption in metric ruler. Default: `\fgrulercaptioncm{cm}`

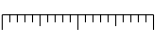
Example: `{\fgrulercaptioncm{}\ruler{rightup}{3cm}}` 

`\fgrulercaptionin{<caption>}`

Unit caption in English ruler. Default: `\fgrulercaptionin{inch}`

`\fgrulerdefnum{<definition>}`

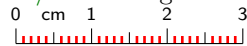
The ruler numbers are determined by the `fgrulernum` counter. Its current value is printed by the `\thefgrulernum`. Its default definition is `\def\thefgrulernum{\arabic{fgrulernum}}`, which is equivalent to `\fgrulerdefnum{\arabic{fgrulernum}}`.

Example: `{\fgrulerdefnum{}\fgrulercaptioncm{}\ruler{rightdown}{2cm}}` 

`\fgrulerratiocm{<ratio1>}{<ratio2>}`

Mark length ratios in metric rulers. If an argument is empty, then that parameter will not be changed.

`<ratio1>` Mark length ratio at $k/10$ cm, where k is positive integer and not divisible by 5.



For example, if this ratio is 0.5 and the mark length at integer unit is 2 mm, then this mark length will be $0.5 \cdot 2 \text{ mm} = 1 \text{ mm}$.

`<ratio2>` Mark length ratio at $k/2$ cm, where k is positive odd integer.

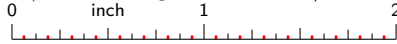


Default: `\fgrulerratiocm{0.5}{0.75}`

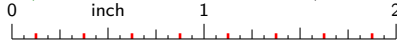
`\fgrulerratioin{<ratio1>}{<ratio2>}{<ratio3>}{<ratio4>}`

Mark length ratios in English rulers. If an argument is empty, then that parameter will not be changed.

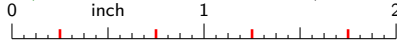
$\langle ratio1 \rangle$ Mark length ratio at $k/16$ inch, where k is positive odd integer.



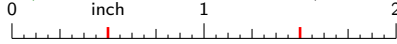
$\langle ratio2 \rangle$ Mark length ratio at $k/8$ inch, where k is positive odd integer.



$\langle ratio3 \rangle$ Mark length ratio at $k/4$ inch, where k is positive odd integer.



$\langle ratio4 \rangle$ Mark length ratio at $k/2$ inch, where k is positive odd integer.



Default: `\fgrulerratioin{0.25}{0.375}{0.625}{0.75}`

`\fgrulerthickcm{ $\langle thick1 \rangle$ }{ $\langle thick2 \rangle$ }{ $\langle thick3 \rangle$ }`

Mark thicknesses in metric rulers. If an argument is empty, then that parameter will not be changed.

$\langle thick1 \rangle$ Mark thickness at $k/10$ cm, where k is positive integer and not divisible by 5.

$\langle thick2 \rangle$ Mark thickness at $k/2$ cm, where k is positive odd integer.

$\langle thick3 \rangle$ Mark thickness at integer units.

The default values are given by $\langle markthick \rangle$ of `\rulerparams`, respectively by `markthick` option.

Example:

```
\fgrulerthickcm{}{}{2pt}
\rulerparams{}{}{5mm}{}
\fgrulernoborderline
\ruler{rightdown}{3cm}
```



`\fgrulerthickin{ $\langle thick1 \rangle$ }{ $\langle thick2 \rangle$ }{ $\langle thick3 \rangle$ }{ $\langle thick4 \rangle$ }{ $\langle thick5 \rangle$ }`

Mark thicknesses in English rulers. If an argument is empty, then that parameter will not be changed.

$\langle thick1 \rangle$ Mark thickness at $k/16$ inch, where k is positive odd integer.

$\langle thick2 \rangle$ Mark thickness at $k/8$ inch, where k is positive odd integer.

$\langle thick3 \rangle$ Mark thickness at $k/4$ inch, where k is positive odd integer.

$\langle thick4 \rangle$ Mark thickness at $k/2$ inch, where k is positive odd integer.

$\langle thick5 \rangle$ Mark thickness at integer units.

The default values are given by $\langle markthick \rangle$ of `\rulerparams`, respectively by `markthick` option.

Example:

```
{\fgrulerthickin{}{}{}{}{2pt}
\rulerparams{}{}{}{5mm}{}
\fgrulernoborderline
\ruler[in]{rightdown}{3in}}
```



`\fgrulercolorcm{ $\langle color1 \rangle$ }{ $\langle color2 \rangle$ }{ $\langle color3 \rangle$ }`

Mark colors in metric rulers. If an argument is empty, then that parameter will not be changed.

$\langle color1 \rangle$ Mark color at $k/10$ cm, where k is positive integer and not divisible by 5.

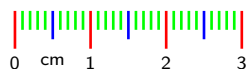
$\langle color2 \rangle$ Mark color at $k/2$ cm, where k is positive odd integer.

$\langle color3 \rangle$ Mark color at integer units.

The default values are given by $\langle color \rangle$ of `\rulerparams`, respectively by `color` option.

Example:

```
{\fgrulercolorcm{green}{blue}{red}
\rulerparams{1pt}{-}{5mm}{-}
\fgrulernoborderline
\ruler{rightdown}{3cm}}
```



`\fgrulercolorin{<color1>}{<color2>}{<color3>}{<color4>}{<color5>}`

Mark color in English rulers. If an argument is empty, then that parameter will not be changed.

`<color1>` Mark color at $k/16$ inch, where k is positive odd integer.

`<color2>` Mark color at $k/8$ inch, where k is positive odd integer.

`<color3>` Mark color at $k/4$ inch, where k is positive odd integer.

`<color4>` Mark color at $k/2$ inch, where k is positive odd integer.

`<color5>` Mark color at integer units.

The default values are given by `<color>` of `\rulerparams`, respectively by `color` option.

Example:

```
{\fgrulercolorin{yellow}{orange}{green}{blue}{red}
\rulerparams{1pt}{-}{5mm}{-}
\fgrulernoborderline
\ruler[in]{rightdown}{3in}}
```



`\fgrulerreset`

It sets all options and parameters to default values. This command is usable only in `document` environment.

⚠ All setting commands obey the normal scoping rules, i.e. if you use them inside a group, then the changing of the parameters is not valid outside the group.

7 Examples

7.1 Deafult case

The output of the following example is the ruler in this page. It is the default case.

```
\documentclass{article}
\usepackage{fgruler}
\begin{document}
...
\end{document}
```


7.2 The showframe and color options

```
\documentclass{article}
\usepackage[color=red,showframe]{fgruler}
\begin{document}
...
\end{document}
```

7.3 The type=upperright option

```
\documentclass{article}
\usepackage[type=upperright]{fgruler}
\begin{document}
...
\end{document}
```

7.4 The type=lowerleft option

```
\documentclass{article}
\usepackage[type=lowerleft]{fgruler}
\begin{document}
...
\end{document}
```

7.5 The type=lowerright option

```
\documentclass{article}
\usepackage[type=lowerright]{fgruler}
\begin{document}
...
\end{document}
```

7.6 Shift in default case

```
\documentclass{article}
\usepackage[hshift=1cm,vshift=2cm]{fgruler}
\begin{document}
...
\end{document}
```

7.7 Shift in case type=upperright option

```
\documentclass{article}
\usepackage[type=upperright,hshift=1cm,vshift=2cm]{fgruler}
\begin{document}
...
\end{document}
```

7.8 Shift in case type=lowerleft option

```
\documentclass{article}
\usepackage[type=lowerleft,hshift=1cm,vshift=2cm]{fgruler}
\begin{document}
...
\end{document}
```

7.9 Shift in case type=lowerright option

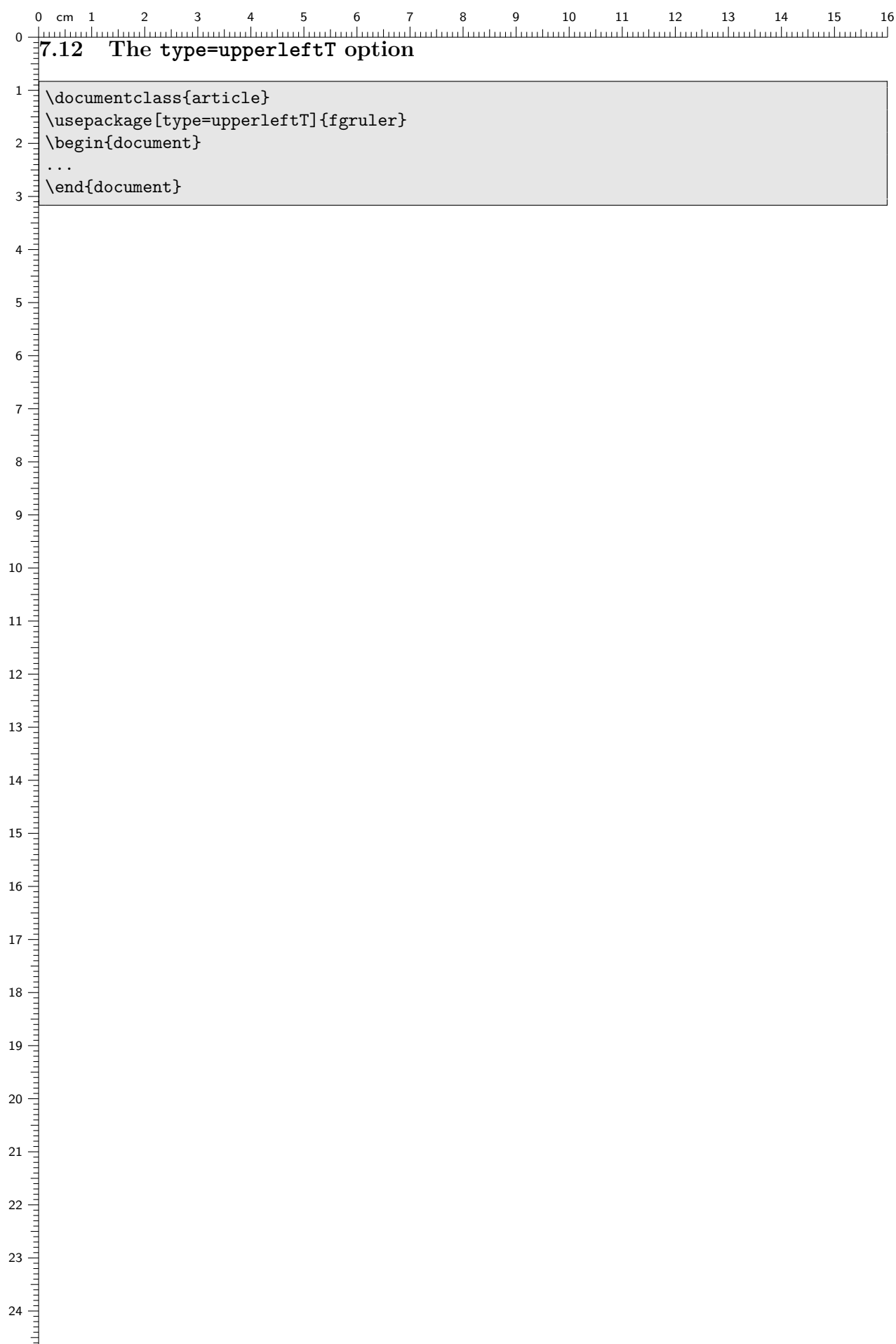
```
\documentclass{article}
\usepackage[type=lowerright,hshift=1cm,vshift=2cm]{fgruler}
\begin{document}
...
\end{document}
```


7.10 The type=alldges option

```
\documentclass{article}
\usepackage[type=alldges]{fgruler}
\begin{document}
...
\end{document}
```

7.11 The type=alldges* option

```
\documentclass{article}
\usepackage[type=alldges*]{fgruler}
\begin{document}
...
\end{document}
```



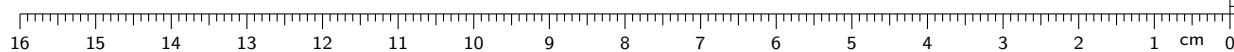


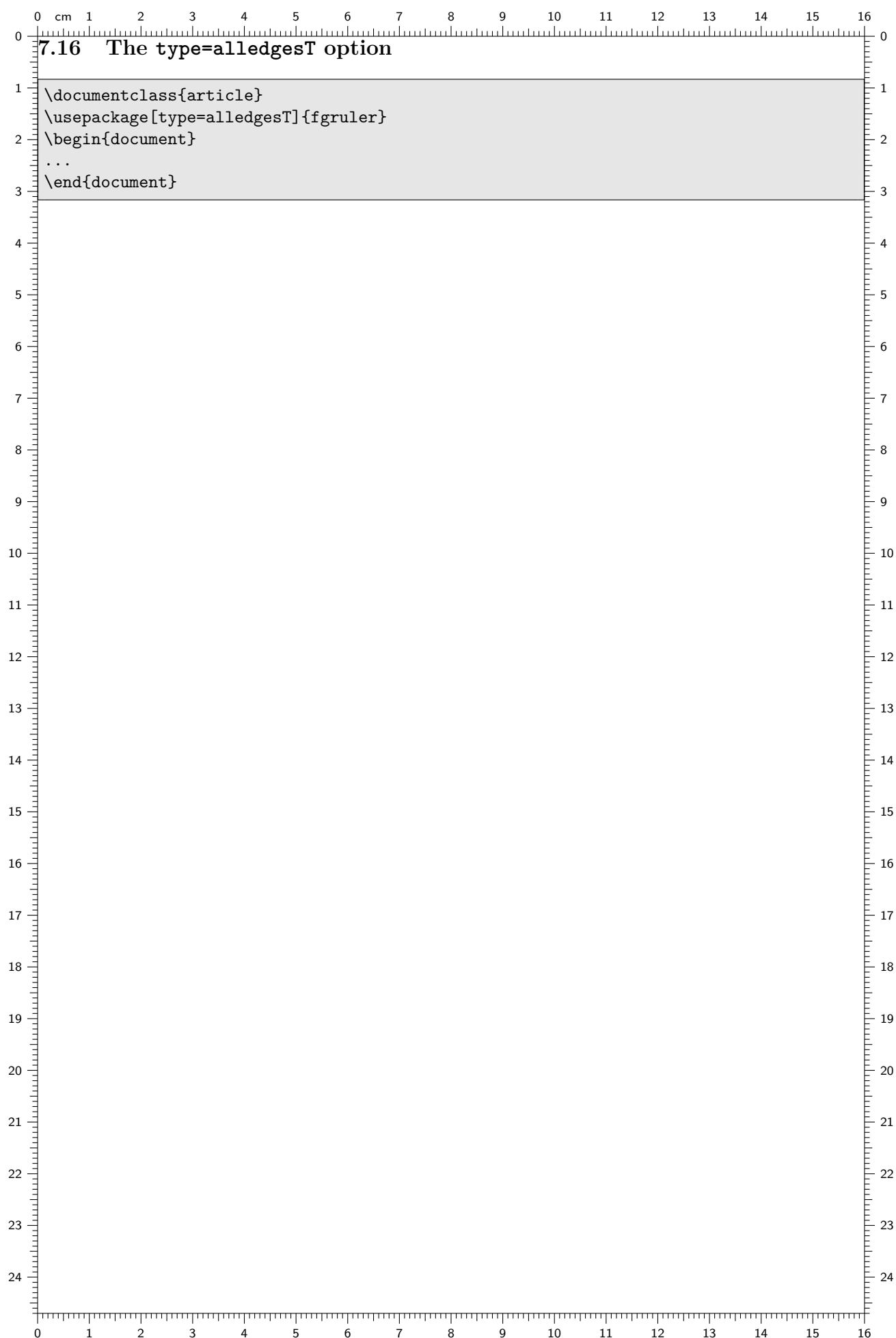
7.14 The type=lowerleftT option

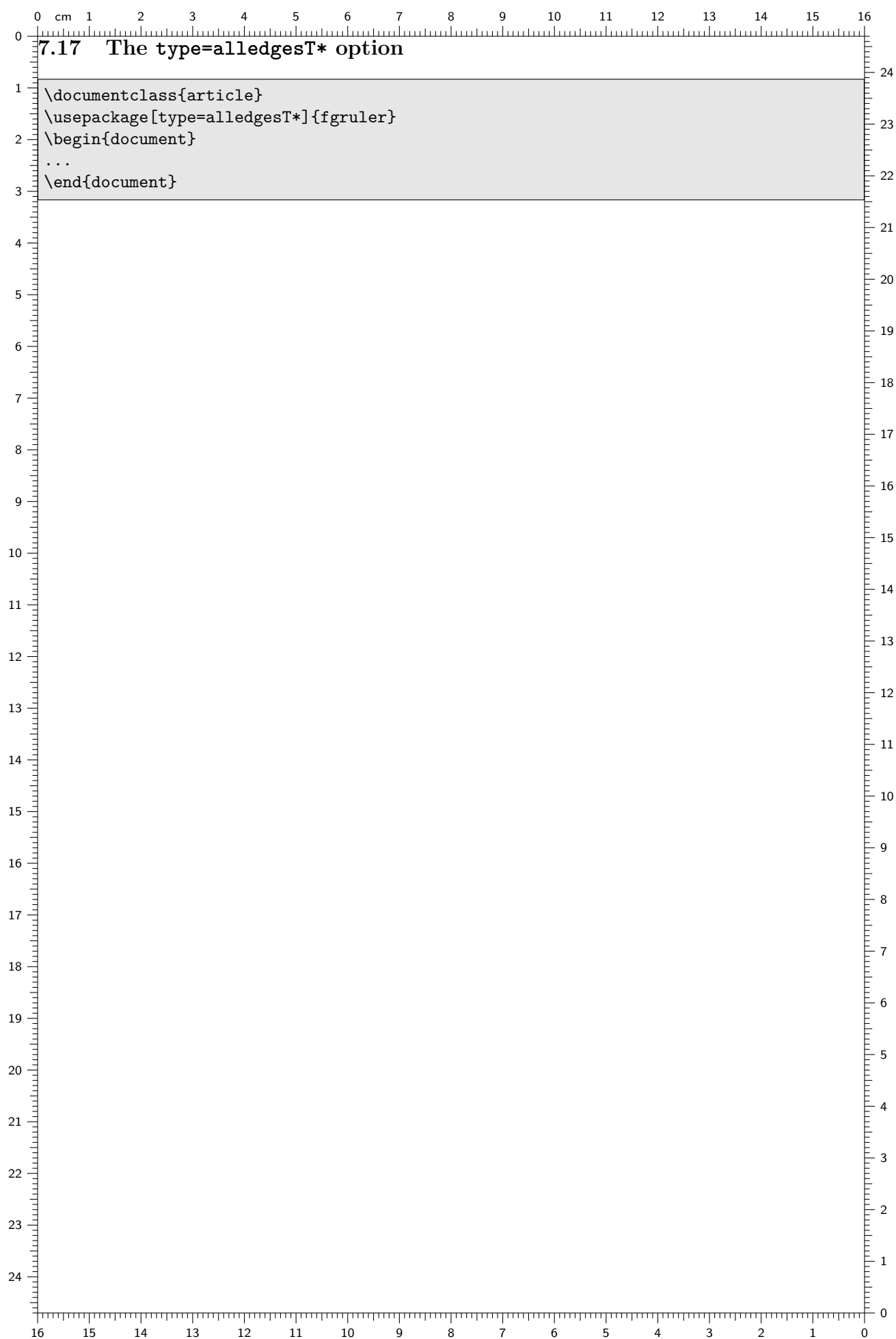
```
\documentclass{article}
\usepackage[type=lowerleftT]{fgruler}
\begin{document}
...
\end{document}
```

7.15 The type=lowerrightT option

```
\documentclass{article}
\usepackage[type=lowerrightT]{fgruler}
\begin{document}
...
\end{document}
```







7.18 Setting the type=user option

In the next example the `type=user` option activates `type=upperright` or `type=upperleft`, depending on the page number is odd or even.

```
\documentclass{article}
\usepackage[type=user]{fgruler}
\fgrulerdefusercm{%
  \ifodd\value{page}\fgrulertype{cm}{upperright}%
  \else\fgrulertype{cm}{upperleft}\fi}
\fgrulerdefuserin{%
  \ifodd\value{page}\fgrulertype{in}{upperright}%
  \else\fgrulertype{in}{upperleft}\fi}
\begin{document}
...
\end{document}
```

7.19 Setting the type=user option

In the next example the `type=user` option combines the effect of `type=upperleft` and `type=upperleftT`.

```
\documentclass{article}
\usepackage[type=user]{fgruler}
\fgrulerdefusercm{\fgrulertype{cm}{upperleft}\fgrulertype{cm}{upperleftT}}
\fgrulerdefuserin{\fgrulertype{in}{upperleft}\fgrulertype{in}{upperleftT}}
\begin{document}
...
\end{document}
```

7.20 Setting the type=user option

In this example the `type=user` option combines the effect of `type=alldges` and `type=alldgesT`.

```
\documentclass{article}
\usepackage[type=user]{fgruler}
\fgrulerdefusercm{\fgrulertype{cm}{alldges}\fgrulertype{cm}{alldgesT}}
\fgrulerdefuserin{\fgrulertype{in}{alldges}\fgrulertype{in}{alldgesT}}
\begin{document}
...
\end{document}
```

7.21 Setting the type=user option

In the next example the `type=user` option places a vertical ruler at the left border of the text area.

```
\documentclass{article}
\usepackage[type=user]{fgruler}
\newcommand{\fgruleruser}[1]{%
  \AtTextLowerLeft{% See eso-pic package!
    \rulerparamsfromfg%
    \llap{\ruler[#1]{downleft}{\textheight}}}%
}%
\fgrulerdefusercm{\fgruleruser{cm}}
\fgrulerdefuserin{\fgruleruser{in}}
\begin{document}
...
\end{document}
```

7.22 Setting the type=user option

In the next example the `type=user` option places rulers at the right and bottom borders of the text area.

```
\documentclass{article}
\usepackage[type=user]{fgruler}
\newcommand{\fgruleruser}[1]{%
  \AtTextLowerLeft{% See eso-pic package!
    \rulerparamsfromfg%
    \rulernorotatenum%
    \llap{\ruler[#1]{downleft}{\textheight}}}%
    \ruler* [#1]{rightdown}{\textwidth}%
  }%
}
\fgrulerdefusercm{\fgruleruser{cm}}
\fgrulerdefuserin{\fgruleruser{in}}
\begin{document}
...
\end{document}
```

0 cm 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16

7.23 Setting the type=user option

In the next example the type=user option places rulers at the right and top borders of the text area.

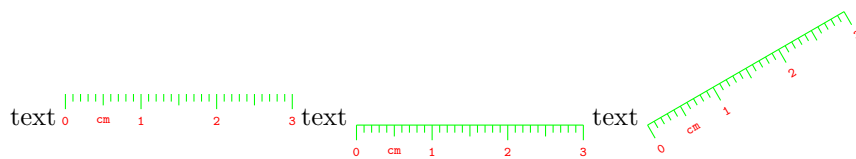
```

\documentclass{article}
\usepackage[type=user]{fgruler}
\newcommand{\fgruleruser}[1]{%
  \AtTextUpperLeft{% See eso-pic package!
    \rulerparamsfromfg%
    \ruler[#1]{rightup}{\textwidth}%
    \rulernorotatenum\fgrulercaptioncm{}\fgrulercaptionin{}}%
    \ruler*[#1]{downright}{\textheight}%
  }%
}
\fgrulerdefusercm{\fgruleruser{cm}}
\fgrulerdefuserin{\fgruleruser{in}}
\begin{document}
...
\end{document}

```

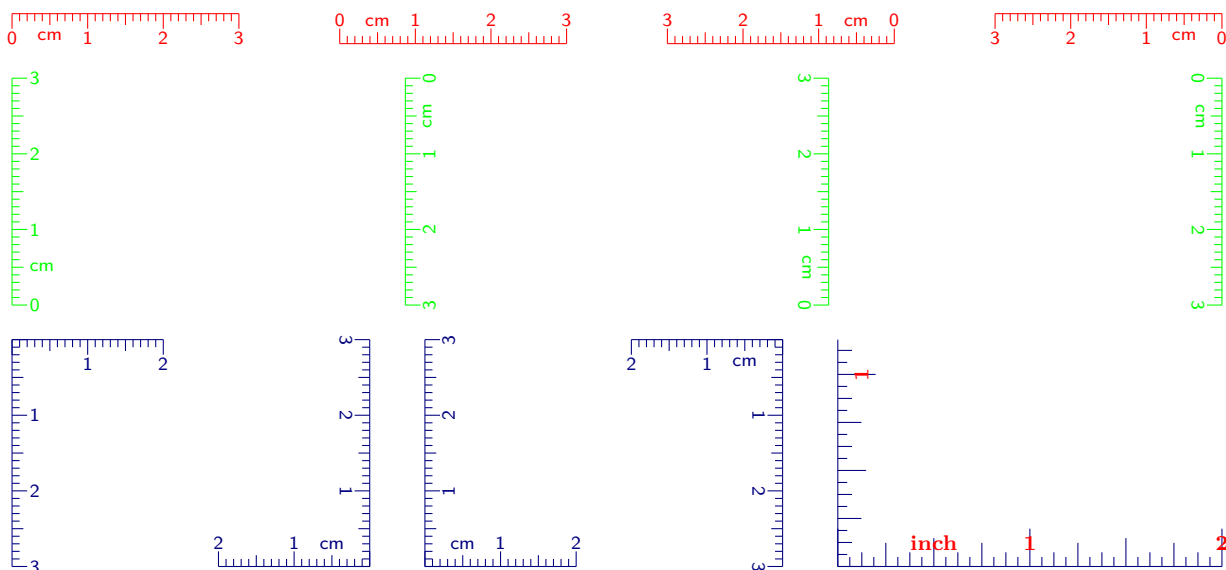
0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24

7.24 Rulers on the foreground of a given page, and in text



```
\documentclass{article}
\usepackage[color=blue]{fgruler}
\begin{document}
  \fgruler{upperleft}{1cm}{1.5cm}
  \noindent
  text
  \rulerparams{}{\color{red}\tiny\ttfamily}{green}{}{}
  {\fgrulernoborderline\ruler{rightdown}{3cm}}
  text
  \ruler*{rightdown}{3cm}
  text
  \rotatebox[origin=tl]{30}{\ruler*{rightdown}{3cm}}
  % \rotatebox is defined in graphicx package
\end{document}
```

7.25 Ruler types in text

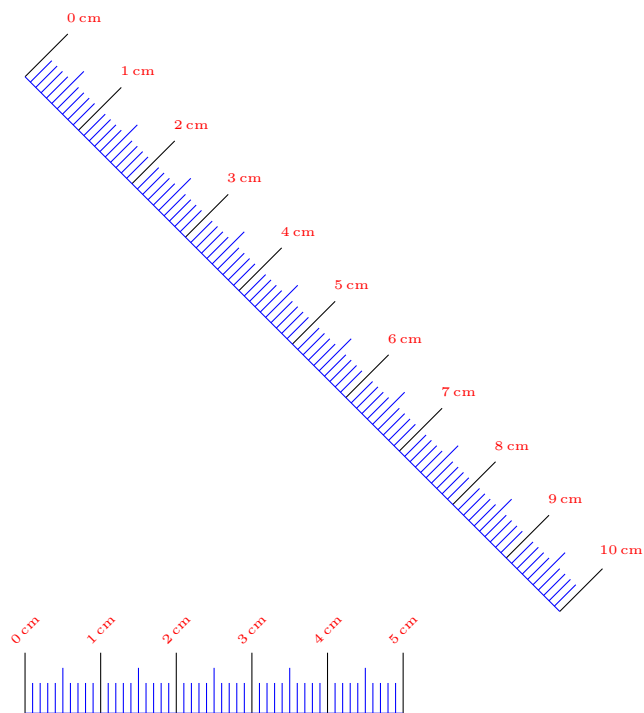


```
\documentclass{article}
\usepackage[nonefgrulers]{fgruler}
\begin{document}
  \noindent
  \rulerparams{}{}{red}{}{1pt}
  \ruler{rightdown}{3cm}
  \hfill
  \ruler{rightup}{3cm}
  \hfill
  \ruler{leftup}{3cm}
  \hfill
  \ruler{leftdown}{3cm}

  \bigskip\noindent
  \rulerparams{}{}{green}{}{}
  {\\rulernorotatenum\ruler{upright}{3cm}}
  \hfill
  \ruler{downright}{3cm}
  \hfill
  \ruler{upleft}{3cm}
  \hfill
  \ruler{downleft}{3cm}

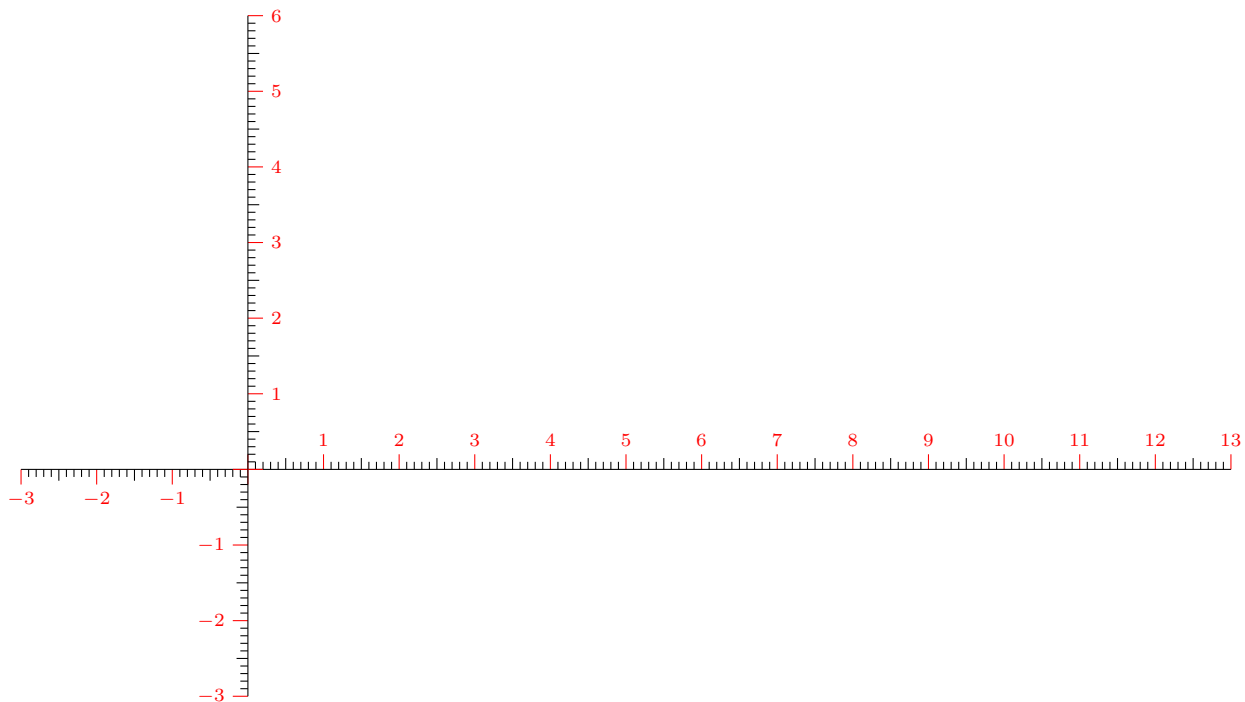
  \bigskip\noindent
  \rulerparams{}{}{blue!50!black}{}{}
  {\\rulernorotatenum\fgrulercaptioncm{}\squareruler{upperleft}{2cm}{3cm}}
  \hfill
  \squareruler{lowerright}{2cm}{3cm}
  \hfill
  \squareruler{lowerleft}{2cm}{3cm}
  \hfill
  \squareruler{upperright}{2cm}{3cm}
  \hfill
  {\rulerparams{}{\footnotesize\bfseries\color{red}}{}{5mm}{-8pt}}
  \squareruler[in]{lowerleft}{2in}{3cm}
\end{document}
```


7.26 Mark length and rotating



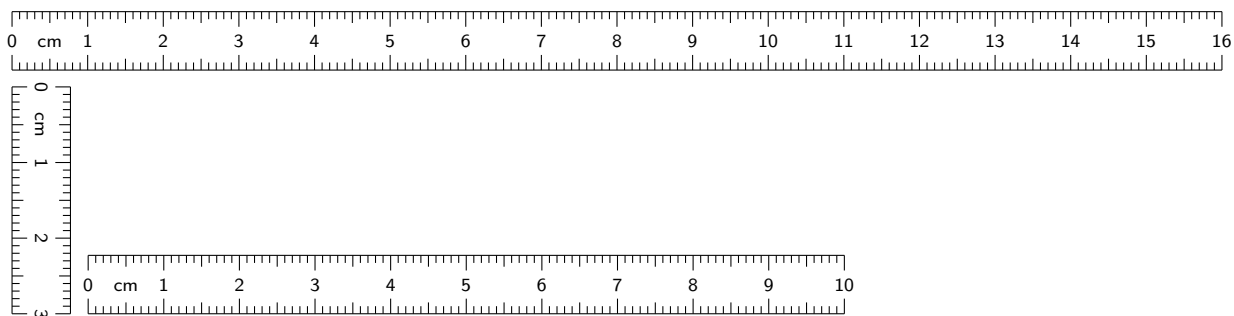
```
\documentclass{article}
\usepackage[nonefgrulers]{fgruler}
\begin{document}
  \noindent
  {\fgrulerdefnum{\rotatebox{45}{\arabic{fgrulernum}\,cm}}
  \fgrulercaptioncm{}
  \rulerparams{\tiny\color{red}}{blue}{8mm}{}
  \fgrulercolorcm{}{}{black}
  \rotatebox{-45}{\ruler{rightup}{10cm}}\
  \ruler{rightup}{5cm}}
\end{document}
```

7.27 Coordinate system



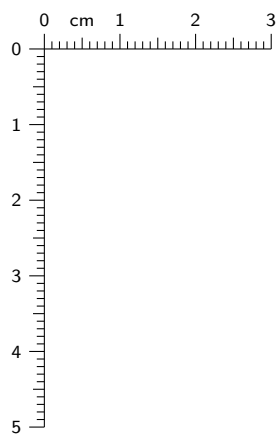
```
\documentclass{article}
\usepackage[nonefgrulers]{fgruler}
\begin{document}
  \noindent
  \rulernorotatenum
  \fgrulercaptioncm{}
  \fgrulercolorcm{}{}{red}
  \rulerparams{}{\scriptsize\color{red}}{}{}{}
  {\fgrulerdefnum{$-\arabic{fgrulernum}$}\squareruler*{upperright}{3cm}{3cm}}%
  \squareruler{lowerleft}{13cm}{6cm}
\end{document}
```

7.28 Tape measure



```
\documentclass{article}
\usepackage[a4paper,margin=25mm]{geometry}
\usepackage[nonefgrulers]{fgruler}
\newcommand{\tapemeasure}[1]{%
  \parbox{#1}{%
    {\fgrulerdefnum{}\fgrulercaptioncm{}\ruler{rightdown}{#1}}\[2pt]
    \ruler{rightup}{#1}}}
\begin{document}
  \noindent
  \tapemeasure{\textwidth}\[2pt]
  \rotatebox[origin=br]{-90}{\tapemeasure{3cm}}
  \tapemeasure{10cm}
\end{document}
```

7.29 A new square ruler type



```
\documentclass{article}
\usepackage[type=none]{fgruler}
\newcommand{\usersquareruler}[2]{%
  {\rulernorotatenum\fgrulercaptioncm{}\ruler*{downleft}{#2}}%
  \ruler{rightup}{#1}%
}
\begin{document}
\usersquareruler{3cm}{5cm}
\end{document}
```