

# The mdframed package

Examples for framemethod=TikZ

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In this document I collect various examples for `framemethod=TikZ`. Some presented examples are more or less exorbitant.

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## 1 Loading

In the preamble only the package `mdframed` with the option `framemethod=TikZ` is loaded. All other modifications will be done by `\mdfdefinestyle` or `\mdfsetup`.

### Note

Every `\global` inside the examples is necessary to work with the package `showexpl`.

## 2 Examples

All examples have the following settings:

```
\mdfsetup{skipabove=\topskip,skipbelow=\topskip}
\newrobustcmd\ExampleText{%
An \textit{inhomogeneous linear} differential equation
has the form
\begin{align}
L[v] = f,
\end{align}
where  $L$  is a linear differential operator,  $v$  is
the dependent variable, and  $f$  is a given non-zero
function of the independent variables alone.
}
```

An *inhomogeneous linear* differential equation has the form

$$L[v] = f, \quad (1)$$

where  $L$  is a linear differential operator,  $v$  is the dependent variable, and  $f$  is a given non-zero function of the independent variables alone. round corner

```
\global\mdfdefinestyle{exampledefault}{%
  outerlinewidth=5pt,innerlinewidth=0pt,
  outerlinecolor=red,roundcorner=5pt
}
\begin{mdframed}[style=exampledefault]
\ExampleText
\end{mdframed}
```

An *inhomogeneous linear* differential equation has the form

$$L[v] = f, \quad (2)$$

where  $L$  is a linear differential operator,  $v$  is the dependent variable, and  $f$  is a given non-zero function of the independent variables alone.

### Example 1 – hidden line + frame title

```
\global\mdfapptodefinestyle{exampledefault}{%
  topline=false,leftline=false,}
\begin{mdframed}[style=exampledefault,frametitle={Inhomogeneous linear}]
\ExampleText
\end{mdframed}
```

#### Inhomogeneous linear

An *inhomogeneous linear* differential equation has the form

$$L[v] = f, \quad (3)$$

where  $L$  is a linear differential operator,  $v$  is the dependent variable, and  $f$  is a given non-zero function of the independent variables alone.

## Example 2 – framed picture which is centered

```
\begin{mdframed}[userdefinedwidth=6cm,align=center,
                 linecolor=blue,middlelinewidth=4pt,roundcorner=5pt]
\includegraphics[width=\linewidth]{donald-duck}
\end{mdframed}
```



## Example 3 – Gimmick

```
\mdfsetup{splitbottomskip=0.8cm,splittopskip=0cm,
           innerlinewidth=2cm,innertopmargin=1cm,%
           innerlinewidth=2pt,outerlinewidth=2pt,
           middlelinewidth=10pt,backgroundcolor=red,
           linecolor=blue,middlelinecolor=gray,
           tikzsetting={draw=yellow,line width=3pt,%
                        dashed,%
                        dash pattern= on 10pt off 3pt},
           rightline=false,bottomline=false}
\begin{mdframed}
\ExampleText
\end{mdframed}
```

An *inhomogeneous linear* differential equation has the form

$$L[v] = f, \quad (4)$$

where  $L$  is a linear differential operator,  $v$  is the dependent variable, and  $f$  is a given non-zero function of the independent variables alone.

## Example 4 – complex example with TikZ

```

\tikzstyle{titregris} =
    [draw=gray, thick, fill=white, shading = exersicetitle, %
     text=gray, rectangle, rounded corners,
     right,minimum height=.7cm]

\pgfdeclarehorizontalshading{exersicebackground}{100bp}
{color(0bp)=(green!40);
color(100bp)=(black!5)}

\pgfdeclarehorizontalshading{exersicetitle}{100bp}
{color(0bp)=(red!40);
color(100bp)=(black!5)}

\newcounter{exercise}
\renewcommand\theexercise{Exercise~n\arabic{exercise}}
\makeatletter
\def\mdf@@exercisepoints{}
\define@key{mdf}{\exercisepoints}{%
    \def\mdf@@exercisepoints{#1}}
}
\renewrobustcmd\mdfcreateextratikz{%
    \node[titregris,xshift=1cm] at (P-|O) %
        {\mdf@frametitlefont{\theexercise}};
    \ifdefempty{\mdf@@exercisepoints}%
    {}%
    {\node[titregris,left,xshift=-1cm] at (P)%
        {\mdf@frametitlefont{\mdf@@exercisepoints points}};}%
}
\makeatother

\mdfdefinestyle{exercisestyle}{%
    outerlinewidth=1pt,
    innerlinewidth=0pt,
    roundcorner=2pt,
    linecolor=gray,
    tikzsetting={shading = exersicebackground},
    innertopmargin=1.2\baselineskip,
    skipabove={\dimexpr0.5\baselineskip+\topskip\relax},
    needspace=3\baselineskip,
    frametitlefont=\sffamily\bfseries,
    settings={\global\stepcounter{exercise}},
}

\begin{mdframed}[style=exercisestyle,]
\ExampleText
\end{mdframed}

\begin{mdframed}[style=exercisestyle,exercisepoints=10]
\ExampleText
\end{mdframed}

```

**Exercise n1**

An *inhomogeneous linear* differential equation has the form

$$L[v] = f, \tag{5}$$

where  $L$  is a linear differential operator,  $v$  is the dependent variable, and  $f$  is a given non-zero function of the independent variables alone.

**Exercise n2****10points**

An *inhomogeneous linear* differential equation has the form

$$L[v] = f, \tag{6}$$

where  $L$  is a linear differential operator,  $v$  is the dependent variable, and  $f$  is a given non-zero function of the independent variables alone.

## Example 5 – Theorem environments

```

\mdfdefinestyle{theoremstyle}{%
  \linecolor=red,\linewidth=2pt,%
  \frametitle=rule=true,%
  \apptotikzsetting={\tikzset{mdfframetitlebackground/.append style={%
    shade,left color=white, right color=blue!20}}},
  \frametitle=rulecolor=green!60,
  \frametitle=rulewidth=1pt,
  \innertopmargin=\topskip,
}
\mdtheorem[style=theoremstyle]{definition}{Definition}
\begin{definition}[Inhomogeneous linear]
\ExampleText
\end{definition}
\begin{definition*}[Inhomogeneous linear]
\ExampleText
\end{definition*}

```

**Definition 1: Inhomogeneous linear**

An *inhomogeneous linear* differential equation has the form

$$L[v] = f, \tag{7}$$

where  $L$  is a linear differential operator,  $v$  is the dependent variable, and  $f$  is a given non-zero function of the independent variables alone.

**Definition: Inhomogeneous linear**

An *inhomogeneous linear* differential equation has the form

$$L[v] = f, \tag{8}$$

where  $L$  is a linear differential operator,  $v$  is the dependent variable, and  $f$  is a given non-zero function of the independent variables alone.