

# 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.

## Contents

|                                       |          |  |   |
|---------------------------------------|----------|--|---|
| <b>1 Loading</b>                      | <b>1</b> | Example 3 – framed picture which is centered . . . . . | 3 |
| <b>2 Examples</b>                     | <b>1</b> | Example 4 – Gimmick . . . . .                          | 3 |
| Example 1 – round corner . . . . .    | 2        | Example 5 – complex example with TikZ                  | 4 |
| Example 2 – hidden line + frame title | 2        | Example 6 – Theorem environments .                     | 6 |

## 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.
}
```

**Example 1 – 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

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

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.

**Example 2 – hidden line + frame title**

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

**Inhomogeneous linear**

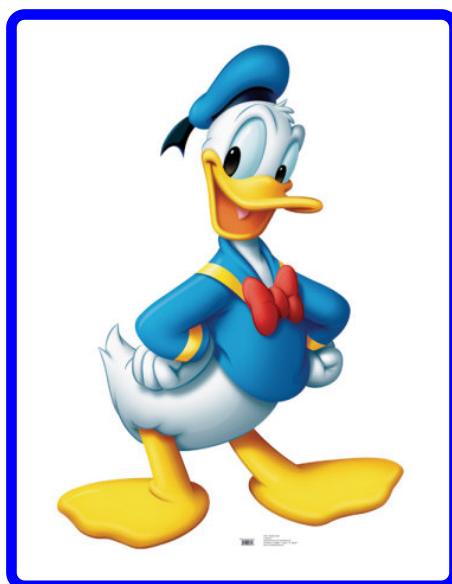
An *inhomogeneous linear* differential equation has the form

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

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 3 – framed picture which is centered

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



## Example 4 – 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

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

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 5 – 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{} %new mdframed key:
\define@key{mdf}{exercisepoints}{%
  \def\mdf@@exercisepoints{#1}
}
\mdfdefinestyle{exercisestyle}{%
  outerlinewidth=1em, outerlinecolor=white, %
  leftmargin=-1em, rightmargin=-1em, %
  middlelinewidth=1.2pt, roundcorner=5pt, linecolor=gray,
  apptikzsetting={\tikzset{mdfbackground/.append style={%
    shading = exersicebackground}}},
  innertopmargin=1.2\baselineskip,
  skipabove={\dimexpr0.5\baselineskip+\topskip\relax},
  skipbelow={-1em},
  needspace=3\baselineskip,
  frametitlefont=\sffamily\bfseries,
  settings={\global\stepcounter{exercise}},
  singleextra={%
    \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}};}%
  },
  firstextra={%
    \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

\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

$$L[v] = f, \tag{4}$$

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.

## Exercise n2

10points

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.

## Example 6 – Theorem environments

```

\mdfdefinestyle{theoremstyle}{%
  linecolor=red,middlelinewidth=2pt,%
  frametitle=rule=true,%
  apptotikzsetting={\tikzset{mdfframetitlebackground/.append style={%
    shade,left color=white, right color=blue!20}}},
  frametitlecolor=green!60,
  frametitlewidth=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

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

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.

**Definition: 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.