## customenvs [en]

# Some custom environments, or small patches.

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### 1 History

| v0.40b:  | PictoCalendar (customenvs-tikzpictos v0.1.2) + enhancements                |
|----------|--|
| v0.40a:  | PictoTraffic (customenvs-tikzpictos v0.1.1) + enhancements                 |
| v0.3.7:  | Auxiliary package customenvs-tikzpictos for pictograms                     |
| v0.3.6:  | Picto bullseye+arrow   |
| v0.3.5:  | Bugfix $+$ pre-compatibility with fa5/fa6                                  |
| v0.3.4:  | Pictoskill   |
| v0.3.3:  | Annotate image   |
| v0.3.2:  | Alt version of title banner  |
| v0.3.1:  | Box for MCQ  |
| v0.3.0:  | Bugfix with beamer   |
| v0.2.7:  | Key for mixing answers in MCQ  |
| v0.2.6:  | Whell of skills, speedometer   |
| v0.2.5:  | Bugfix with exercices ([fr] macro)   |
| v0.2.4:  | Small box marker   |
| v0.2.3:  | Highway signs + sold banners (see [fr] doc)                                |
| v0.2.2:  | Flared arrow, with $TikZ$  |
| v0.2.1:  | Enhancements for $stars \ skills + AutoGrid for \ TikZ \ (see [fr] \ doc)$ |
| v0.2.0:  | Skills with stars (fontawesome5 or $TikZ$ )                                |
| v0.1.9:  | Title banner   |
| v0.1.8:  | Score banner   |
| v0.1.7:  | Small patch for Vignette macro (see [fr] documentation)                    |
| v0.1.6:  | Small patchs for $displayskip + pas-tableur$ (see [fr] documentation)      |
| v0.1.5:  | New macros for boxes with tcolorbox (see [fr] documentation)               |
| v0.1.4:  | Create a SMS conversation  |
| v0.1.3:  | Environment for exercise(s) (in french doc)                                |
| v0.1.2:  | Pencil of skills   |
| v0.1.1:  | Skills table (only french for the moment)                                  |
| v0.1.0 · | Initial version  |

#### 2 The package customenvs

#### 2.1 Idea

The idea is to propose some classics environments with customizations (some are, for the moment, only in french):

- write in *multicols*, with spacings enhancements;
- present answers for a MCQ;
- create a list with *choosen items* (randomly or by numbers);
- present a skill table.

The globa idea is ti propose *user-friendly* environments, with explicit customizations, without using verbose syntax; but there's other solutions, using for example \vspace ou \setlength or spacingtricks package.

#### 2.2 Loading

The package loads within the preamble with \usepackage{customenvs}. Loaded packages are

- xstring, simplekv, listofitems, randomlist and xintexpr;
- enumitem;
- multicol;
- tabularray;
- fontawesome;

Due to limitations, enumitem/multicol/tabularrayfontawesome5/6 can be un loaded by customenvs (user must load them manually) via options:

- (beamer) for using with beamer;
- \( \text{noenum} \) ;
- \( \text{nomulticol} \);
- (notblr);
- $\langle nofa \rangle$ .

```
%with all packages
\usepackage{customenvs}

%with option to no load some packages
\usepackage[option(s)]{customenvs}
```

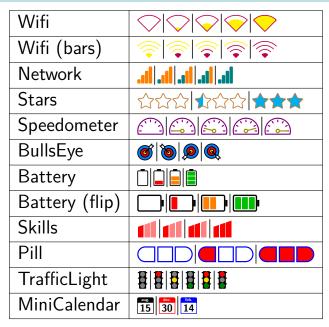
#### 2.3 Subpackage customenvs-tikzpictos (v0.1.2)

The package customenvs-tikzpictos, loaded within customenvs (but can be loaded independently), proposes small pictograms.

```
%\usepackage{customenvs-tikzpictos} %only if for standalone

\tkzpicto%
    [keys]
    <tikz options>
    {type=params}

%type= wifi/network/stars/speedo/bullseye/skills/pill/calendar
%params= nb/nblevels (except bullseye) or day/month (calendar)
%key height= len / auto (without depth) / dauto (with depth)
```



#### 3 Answers for a MCQ

#### 3.1 Idea

The idea is to propose an environment to present answers for a MQC with tabularray (and not multicols). It's possible to use 2, 3 or 4 answers (and with 4 answers it's possible to use 2 columns.)

#### \AnswersMCQ[options]{list of answers}<tblr options>

The avalailable options are:

- Width: 0.99\linewidth by default;
- Lines : false by default ;
- SpaceCR for Columns/Rows spacing, within col/row or global: 6pt/2pt by default;
- NumCols, 2 or 4: 4 by default;
- Labels for the labels : a. by default ;
  - with box to use a Box;
  - with a to enumerate a b c d;
  - with A to enumerate ABCD;
  - with 1 to enumerate 1 2 3 4;
- FontLabels : \bfseries by default ;
- SpaceLabels: \kern5pt by default;
- Shuffle, for mixing answers: false by default;
- Swap, for ACBD instead of ABCD : false by default.

The list of answers must be given within answA § answB § ....

Specific options for tblr are given between last optionnal argument, between <...>.

#### 3.2 Examples

# %default output \AnswersMCQ{Answer A § Answer B § Answer C § Answer D} a. Answer A b. Answer B c. Answer C d. Answer D

```
\AnswersMCQ[Lines] {Answer A § Answer B § Answer C § Answer D}
```

\AnswersMCQ[Lines, Shuffle] {Answer A1 § Answer B1 § Answer C1 § Answer D1}

\AnswersMCQ[Lines, Shuffle] {Answer A2 § Answer B2 § Answer C2 § Answer D2}

| a. Answer A  | <b>b.</b> Answer B  | c. Answer C  | d. Answer D  |
|--------------|---------------------|--------------|--------------|
| a. Answer C1 | <b>b.</b> Answer D1 | c. Answer A1 | d. Answer B1 |
| a. Answer A2 | <b>b.</b> Answer C2 | c. Answer B2 | d. Answer D2 |

| \4 \ \\ \\ \\ \\ \\ \\ \\ \\ \\ \\ \\ \\      | 27.64        | _ |        | D 6 |        | <b>~</b> 1 |
|---|--------------|---|--------|-----|--------|------------|
| \AnswersMCQ[Lines,Labels=(1.),SpaceLabels={~~ | ~}]{Answer A | 9 | Answer | R & | Answer | C}         |

| (1.) Answer A | (2.) Answer B | (3.) Answer C |
|---------------|---------------|---------------|
|               |               |               |

\AnswersMCQ[Labels={A.},FontLabels={\color{red}\bfseries}]% {Answer A § Answer B § Answer C § Answer D} C. Answer C A. Answer A **B.** Answer B **D.** Answer D \AnswersMCQ[Labels={1.},FontLabels={\color{red}\bfseries}]% {Answer A § Answer B § Answer C § Answer D} 1. Answer A 2. Answer B 3. Answer C 4. Answer D \AnswersMCQ[NumCols=2,Labels={A.},FontLabels={\color{red}\bfseries}]% {Answer A § Answer B § Answer C § Answer D} A. Answer A C. Answer C B. Answer B **D.** Answer D \AnswersMCQ[NumCols=2,Swap,Labels={A.},FontLabels={\color{red}\bfseries}]% {Answer A § Answer B § Answer C § Answer D} A. Answer A B. Answer B C. Answer C D. Answer D \AnswersMCQ[Lines, NumCols=2, SpaceCR=6pt/10pt, Labels=box]% {Answer A § Answer B § Answer C § Answer D} ☐ Answer A  $\square$  Answer C ☐ Answer B  $\square$  Answer D % checkedbox is \def\MCQanswersbox{\raisebox{-0.2ex}{\faSquare[regular]}} \AnswersMCQ[Width=10cm, NumCols=2, Lines]%  ${\frac{x} {\frac x} } = \frac{1x} } $ 1+\displaystyle x^2+\frac x}$  $< rows = \{1.5cm\} >$  $\mathbf{a.} \ \frac{1}{x}$ **c.**  $-2x^2 + 5$ **b.**  $1 + \frac{1}{x}$  $\mathbf{d} \cdot -\infty$ 

#### 4 List with picked elements (random or not)

#### 4.1 Global use

The idea is to:

- create a list of items, the base for choices;
- print the list with picked items.

```
\CreateItemsList{list}{macro}{listname}
```

```
\ListItemsChoice[keys]{macro}{listname}(numbers)<enumitem options>!beamer options!
```

The available keys are:

- Type : enum or item ;
- Random: false by default.

The second argument, mandatory and between {...} is the macro for the list.

The third argument, mandatory and between  $\{\ldots\}$  is the name of the list.

The fourth argument, mandatory and between (...) give:

- the number of random items to display, with Random=true;
- the numbers of picked itemps, within num1, num2, ....

The next argument, optional and between <...> gives specific options to enumitem environment. The last argument, between !..! gives specific options to enumitem environment with beamer.

Controls are done:

- to verify that the list doesn't exist (for the creation);
- to verify that that the list still exist (for the display).

#### 4.2 Examples

```
%creation of list ListItems, with macro \mylistofitems
\CreateItemsList%
    {Answer A, Answer B, Answer C, Answer D, Answer E, Answer F, Answer G, Answer H}%
    {\mylistofitems}{ListItems}
                                                                                1. Answer C
                                                                                2. Answer G
%items random
                                                                                3. Answer A
\ListItemsChoice[Random] {\mylistofitems} {ListItems} (5)
                                                                                4. Answer D
                                                                                5. Answer E
                                                                                1. Answer A
                                                                                2. Answer D
%items picked
                                                                                3. Answer C
\ListItemsChoice{\mylistofitems}{ListItems}(1,4,3,8,2)
                                                                                4. Answer H
                                                                                5. Answer B
```

```
%creation of list ListItemsB, with macro \mylistofitemsb
\CreateItemsList%
    {{\int_0^1 x^2 dx$},{\int_0^1 x^3 dx$},{\int_0^1 x^4 dx$},...}%
    {\mylistofitemsb}{ListItemsB}
```

#### %items picked

 $\label{listItemsChoice} $$ \coprod_{\text{ListItemsB}} (7,2,1,5,3) \leq = $--$> $$ 

- $--\int_0^1 x^8 dx$
- $--\int_0^1 x^3 dx$
- $--\int_0^1 x^2 dx$
- $--\int_0^1 x^6 dx$
- $--\int_0^1 x^4 dx$

#### 5 Pencil of skills

#### 5.1 Global use

The idea is to:

- present of list of categories and skills;
- presented like a pencil.

The code (within CC-BY-SA 4.0 license) is adapted from :

https://tex.stackexchange.com/questions/504092/replicating-a-fancy-bordered-text-style-in-latex/504145#504145%

```
\PencilSkills[keys] < tikz options > { listofskills}
```

The style is globally fixed, but there's some customization available.

#### 5.2 The macro

Available keys are:

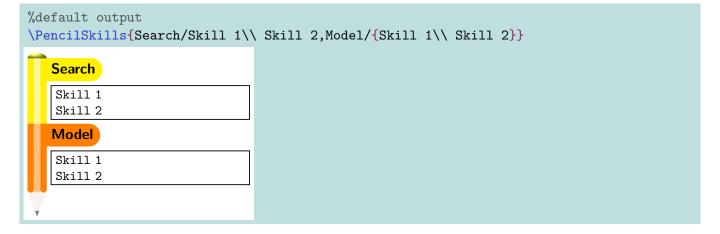
- FontCateg: font for the categories;
- FontBlock : font for the skills ;
- Colors: list of category's colors

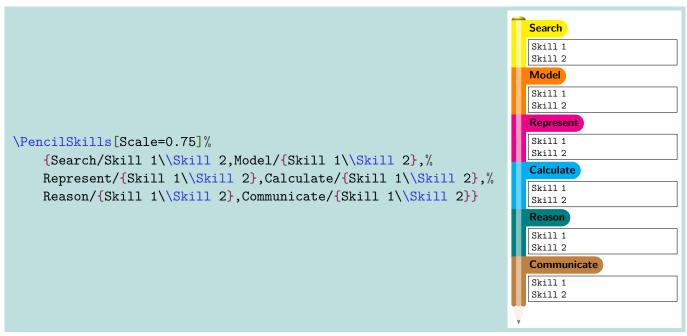
  BgCateg1/FgCateg1,BgCateg1/FgCateg1,...

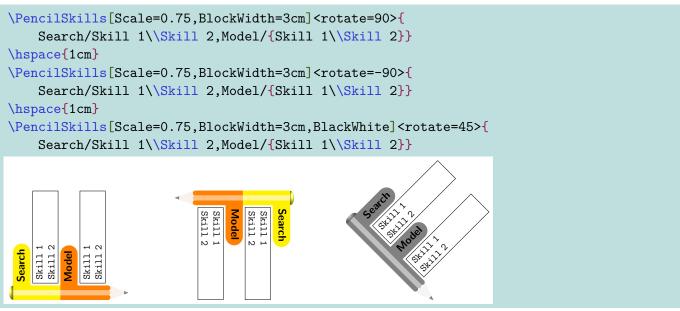
  (if FgCateg1 est missing, black is used)
- BlockWidth: width of skill's block;
- Scale : global scale
- BlackWhite: boolean for B&W.

The second argument, optional and between <...> gives specific options to enumitem environment. The last argument, mandatory and between (...) give the list of categories/skills, within Categ1/ListSkills1,Categ2/ListSkills2,....

#### 5.3 Examples







#### 6 Score banner

#### 6.1 Global use

The idea is to insert a score banner, with customization.

#### ScoreBanner[keys] {number}

%default output
\ScoreBanner{}



#### 6.2 The macro

Available keys are:

- Height: height of the banner (without the legend); 1 by default
- Ratio: ratio of boxes; 0.6 by default
- Symbols: labels; A,B,C,D,E by default
- Legend : legend (uppercase) ; score by default ;
- Font : global font ; \bfseries\sffamily by default
- ShowLegend: boolean for the legend; false by default;
- Colors : colors for boxes ;

colorNS1,colorNS2,colorNS3,colorNS4,colorNS5 by default ;

- ScaleSymbols : scale H/V of labels ; 1.25,1.65 by default ;
- Colbg: background color for select box; white by default.

If the list of colors doesn't fill all the boxes, lightgray color is used.

\ScoreBanner[Legend=Geometry, Height=2]{4}



%bg of lower part is yellow!25
\def\lstcouleurs{colorNS1,colorNS2,colorNS3,colorNS4,colorNS5,purple}
\ScoreBanner%

[ScaleSymbols={1.33,2},Height=3.25,ShowLegend=false,Ratio=0.75,Symbols={1,2,3,4,5,6},Colors=\lstcouleurs,Colbg=yellow!25]{1}

#### 7 SMS conversation

#### 7.1 Global use

The idea is to present a conversation of SMS.

```
\begin{ChatSMS}[keys]{name}
  \InSMS(*){time}{msg}
  \OutSMS*(*){time}{msg}
\end{ChatSMS}
```

The style is globally fixed, but there's some customization available.

#### 7.2 The environment

Available keys are:

- height: height of the window (auto or specific); auto by default
- width: width of the window; 7cm by default
- margin: margin (L or R) for the bubble 1.5cm by default
- color: main color (banner); teal!75!cyan!75!white by default;
- colback: color for background; lightgray!5 by default
- colorin: color for incoming SMS; lime!25 by default
- colorout : color for outcoming SMS ; teal!25 by default
- writetxt : text of sending zone ; Write by default
- fonttxt : bubble's font ; \normalfont by default
- avatar : avatar of contact ; \faAddressCard by default
- dispavatar: boolean for displaying avatar near the bubbles; false by default
- blackwhite: boolean pour black&white. false by default

The argument, mandatory and between (...) give the name of the contact.

#### 7.3 Macros for the bubbles

Regarding the bubble creation commands, \InSMS and \OutSMS:

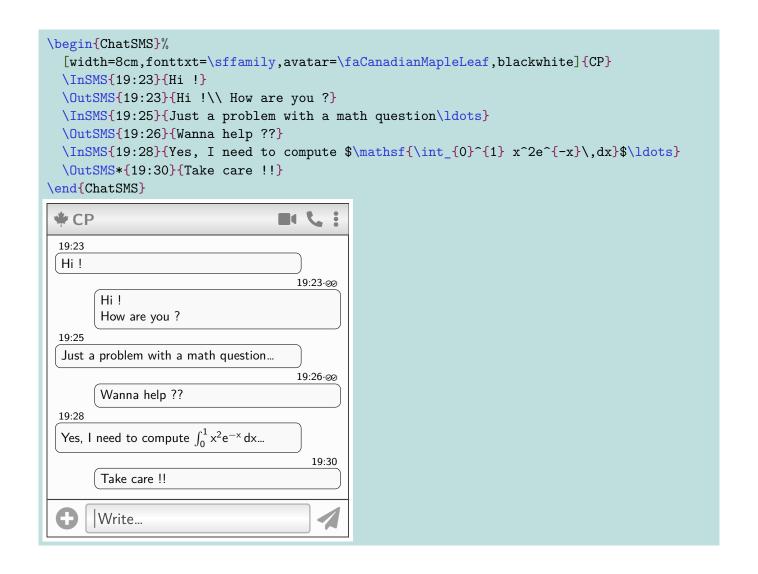
- the starred version does not display the checkmarks of good reception;
- the first mandatory argument is the time to display;
- the second mandatory argument is the message to display (including multi-lines).

#### 7.4 Examples

```
%with a personal image
\begin{ChatSMS}%
  [width=6cm,fonttxt=\sffamily,height=10cm,avatar=img/android,dispavatar]{CP}
  \InSMS{19:23}{Hi !}
  \OutSMS{19:23}{Hi !\\ How are you ?}
  \InSMS{19:25}{Just a problem with a math question\ldots}
  \OutSMS{19:26}{Wanna help ??}
  \label{lem:linsms} $$ I need to compute $\mathbf{0}^{1} x^2e^{-x}\,dx}$\label{linsms} $$
  \OutSMS*{19:30}{Take care !!}
\end{ChatSMS}
  CP
                       19:23

₱ Hi!

                          19:23.∞
       Hi!
       How are you?
   19:25
   Just a problem with a
   math question...
                          19:26-∞
       Wanna help ??
   19:28
   Yes, I need to compute
    \int_{0}^{1} x^{2} e^{-x} dx...
                            19:30
       Take care !!
       Write...
```



#### 8 Title banner

#### 8.1 Global usage

The idea is to propose a banner, made with TikZ, to present for example a title. The global style is fixed, but few customization are possible.

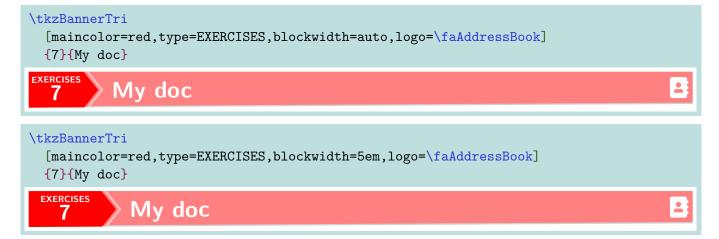
\tkzBannerTri[keys]{number}{title}
\tkzBannerTri{01}{Title of document}

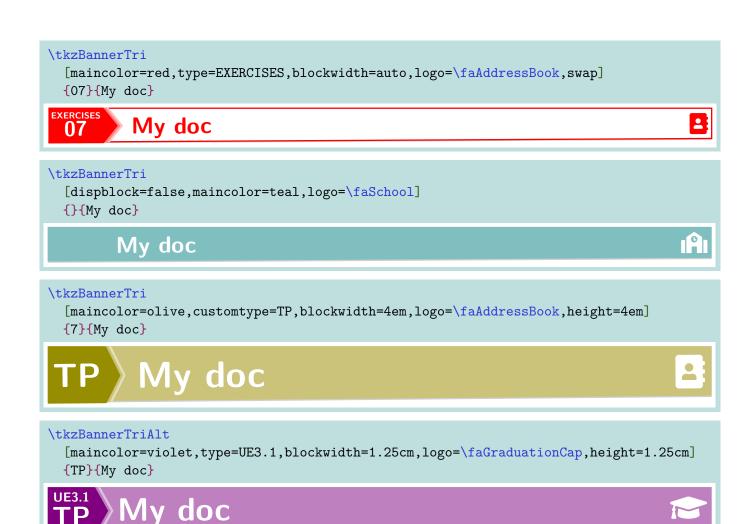
01 Title of document

#### Available keys are:

- height (2.5em by default)
- width (\linewidth by default)
- blockwidth (2.75em by default, but can be set to auto)
- coltxt (white by default)
- fonttxt
- swap (false by default, for an other style )
- maincolor (darkgray by default)
- collight (darkgray!25 by default)
- colmedium (darkgray!50 by default)
- coldark (darkgray by default)
- logo
- type
- dispblock (true by default)
- num (true by default)
- customtype
- custommulti (false by default)

#### 8.2 Examples





#### 9 Various commands

#### 9.1 Difficulty levels with stars (fontawesome5)

```
\DiffLevelStars[max level (3)]{level}
```

```
\DiffLevelStars{0}\par
\DiffLevelStars{2.5}\par
\textcolor{teal}{\LARGE\DiffLevelStars[5]{4}}\par
\DiffLevelStars[5]{1.5}\par
```



#### 9.2 Difficulty levels with stars (tikz)

```
\tkzLevelStars[colframe=...,colback=...,offset=...,maxlevel=...,valign=...]{level}

\tkzLevelStars{2.5}\par
{\LARGE We ty inline \tkzLevelStars{2.25} with score 2.25}\par
{\LARGE We ty inline \tkzLevelStars[valign=false]{1.75} with score 1.75}\par
\tkzLevelStars[colframe=red,colback=yellow,maxlevel=5]{3}
```

#### 9.3 Flared arrow

```
\tkzFlaredArrow[%
                       %color of arrow
  color=...,
                       %size (auto or H/W )
  arrowsize=...,
                       %empty for straigth or left/... or right/...
  bend=...,
                       %size for the beginning
  thickness=...,
                       %factor for calculing size for ending
 factor=...,
 arrowstyle=...,
                       %style (arrows.meta)
                       %boolean for moving instead coordinates
 move=...
 ]%
  {begin}{end or move}
```

```
%arrow 0.5mm -> 1.25mm
\begin{tikzpicture}
\tkzFlaredArrow%
   [thickness=0.5mm,factor=2.5,bend=left/30,color=red,arrowstyle=Triangle]%
   {0,0}{5,1.5}
\end{tikzpicture}
```

```
\begin{tikzpicture}
  \draw[thin,lightgray] (-3,-1) grid (5,5);
 \coordinate (A) at (0,0); \coordinate (B) at (4,1);
 \coordinate (C) at (1,1); \coordinate (D) at (5,4);
 \coordinate (E) at (0,1); \coordinate (F) at (0,5);
 \coordinate (G) at (-2,0);
 \tkzFlaredArrow[color=green,arrowstyle=Triangle]{A}{B}
 \tkzFlaredArrow[color=blue,bend=right/10]{D}{C}
 \tkzFlaredArrow%
    [color=red,bend=left/45,arrowstyle=Stealth,thickness=0.1mm,factor=10]\%
    \{-2,1\}\{0,4\}
 \tkzFlaredArrow%
    [color=red,bend=right/45,thickness=0.1mm,factor=10,arrowstyle=Stealth]%
    \{-2,1\}\{0,4\}
 \tkzFlaredArrow[color=teal,move,bend=left/10]{-3,-1}{5,1}
  \end{tikzpicture}
```

#### 9.4 Small markerbox

```
\tbcmarker[color=...,width=...,font=...]{text}

\tbcmarker{my text}

my text

\tbcmarker[color=olive,font=\normalfont\normalsize]{my text}

my text
```

#### 9.5 Annotate an image

The idea is to provide a way of annotating an image, using an environment and a command which are linked to TikZ.

```
\begin{imgannotate} [keys] [includegraphics options] {imagefile with extension}
  \puttxtonimg[tikz node options] {coordinates} {txt}
  \puttxtonimg*[tikz node options] {coordinates within percentage} {txt}

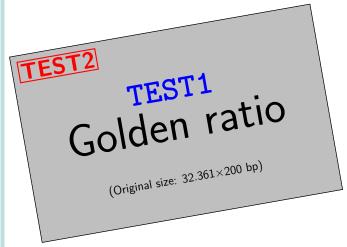
\end{imgannotate}

%====keys

%clip=... : boolean for clipping img
%node=... : node name for reusing (remember picture)

%grid=... : optionnal value for showing helping grid
%subgrid=... : integer value for subgrid
%gridcolor=...: grid color
```

```
%\usepackage[auto,outline]{contour}
\begin{imgannotate}[grid=1] [height=4cm]{example-image.png}
\puttxtonimg[scale=5,rotate=30]
    {1,1}{\contourlength{0.05em}\color{white}\contour{black}{$\pi$}}
\puttxtonimg*[scale=1.5,rotate=-15]
    {0.66,0.75}{\contourlength{0.025em}\color{violet}\contour{yellow}{Pythagore}}
\end{imgannotate}
```



#### 9.6 Lengths

```
\getwideststring[\macro]{elt1,elt2,...eltn}
\halignmakebox[align option]{elt}{list of elements}

%widest string (\tmpwideststring by default)
\getwideststring{Exercise 1,Evaluation 2,Test n°3}\the\tmpwideststring

60.69586pt
```

%without
\sffamily\Large
Exercise 1 (10 points)\
Exercise 1 (10 points)\\
Evaluation 2 (8 points) \\
Test n°3 (4 points)
Test n°3 (4 points)

```
%width
\storewidthtolength[delta]{box}{\macro}
%height
\storeheighttolength[delta]{box}{\macro}
%totalheight
\storetotalheighttolength[delta]{box}{\macro}
%depth
\storedepthtolength[delta]{box}{\macro}
```

```
\storedepthtolength[delta]{box}{\macro}

\def\tmpbox{\large $1+\frac{1}{x}$}

\storewidthtolength{\tmpbox}{\mytmpboxwidth}\the\mytmpboxwidth

\storewidthtolength[10pt]{\tmpbox}{\mytmpboxwidthdelta}\the\mytmpboxwidthdelta

\storeheighttolength{\tmpbox}{\mytmpboxheight}\the\mytmpboxteheight

\storetotalheighttolength{\tmpbox}{\mytmpboxtotheight}\the\mytmpboxteheight

\storedepthtolength{\tmpbox}{\mytmpboxdepth}\the\mytmpboxdepth

27.53175pt
37.53175pt
9.88034pt
14.01843pt
4.13809pt
```

