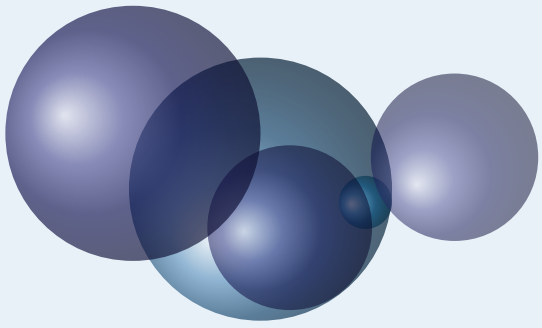
AlterMundus

alterqcm 4.42c



Alain Matthes

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http://altermundus.fr

alterqcm

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alterqcm (v 4.42 2020/08/17) Macros to support the creation of multiple-choice questionnaires in two-column tables. **Apostolos Syropoulos**, and **Anastasios Dimou** have adapted the package to use Greek. With the help of **Wolfgang Büchel** I added German, Russian and Italian. Finally it was **LianTze Lim** and **Chennan Zhang** who helped me with the Chinese translation. You can use another language with "unknown " option. With some languages, you need to compile with XeLaTeX. **alterqcm** is present on the **CTAN** servers and is part of **TeXLive** so **tlmgr** or **TeX Live Utility** will allow you to install it. You will also find **alterqcm** in **MikTeX** under **Windows XP**.

I thank **Jean-Côme Charpentier**, **Manuel Pégourié-Gonnard**, **Franck Pastor**, **Ulrike Fischer** and **Josselin Noirel** for the different ideas and advices that allowed me to make this package. Thanks also to **Wolfgang Büchel** for his corrections and scripts.

You can send your remarks, and reports on errors you have found. at the following address Alain Matthes

Contents

1 How to use: first example

You need to load the `alterqcm.sty` with `\usepackage[english]{alterqcm}`, if you want to use the english language. With some languages like Greek or Chinese you need to compile with XeLaTeX otherwise you can compile with LuaLaTeX or PDFLaTeX .

Just use an environment **alterqcm** and the macro **\AQquestion**, here is an example :

```
\documentclass[12pt]{article}
\usepackage[english]{alterqcm}
% or french ...
\usepackage{fullpage}
\parindent0pt
\begin{document}
\begin{alterqcm}
 \AQquestion{Question}{%
 {Proposition 1},
 {Proposition 2},
 {Proposition 3}}
\end{alterqcm}
\end{document}
```

alterqcm.sty creates a new environment **alterqcm** which allows for a two-column table. One column on the left for the questions, the other for the different proposals. The propositions are given in a list :
{{Proposition 1},
{Proposition 2},
{Proposition 3}}.
The number of propositions is between **2** and **5**.

The result is:

Questions	Answers
1. Question	☐ Proposition 1 ☐ Proposition 2 ☐ Proposition 3

The total width of the array is equal to **\textwidth**. By default the question column has the width **100mm** plus a few millimeters ... introduced by the table. The width of the answers is equal to **\textwidth** minus the width of the first column.

The important point is that the height of the lines in the proposals is calculated automatically so that, on the one hand, the text of the proposals is placed correctly without touching the lines and, on the other hand, the text of the corresponding question can be included in its box. Precise positioning is obtained with the option **pq**.

1.1 Packages loaded by alterqcm.sty

The list of loaded packages is as follows:

```
\RequirePackage{xkeyval}[2005/11/25]
\RequirePackage{calc}
\RequirePackage{ifthen,forloop}
\RequirePackage{array}
\RequirePackage{multirow}
\RequirePackage{pifont}
```

You will need to load **longtable.sty** if you wish to use the **long** option for one of your arrays.

You also need the macro **\square**, it is either defined in the package **fourier** or in the package.

2 Tools: The environment alterqcm and the macro \AQquestion

2.1 Environment alterqcm

\begin{alterqcm}[⟨options⟩] ⟨environment contents⟩ **\end{alterqcm}**

Here is the list of available **options** classified by category.

Options	*Default*	*Definition*
	Dimensions	
lq	100mm	width of the question column
pq	0pt	vertical shift of the question
	Numbers	
bonus	0,5	points for a correct answer
malus	0,25	points for wrong answer
numbreak	0	to take over a split board
points	empty	points awarded to the qcm in the margin
	Macros	
symb	$\square$	symbol in front of the proposal
corsymb	$\blacksquare$	symbol in front of the proposal
numstyle	\arabic	style of question numbering
propstyle	\alph	style of proposal numbering
size	\normalsize	font size
afterpreskip	\medskip	skip after the presentation
	Booleans	
long	true	longtable instead of tabular
sep	true	proposal separator
pre	false	MCQ presentation
VF	false	MCQ in the form True or False
numprop	false	proposal numbering
num	true	style of question numbering
nosquare	false	sremoving the square of proposals
title	false	title suppression
correction	false	allows you to create an answer sheet
alea	false	randomly place proposals
	Texts	
tone	Questions	column title 1
ttwo	Réponses	column title 2
language	french	french, english, german, greek, russian, italian, chinese, unknown

To create a MCQ use a alterqcm environment as well as the \AQquestion macro defined in the next section.

2.2 The macro \AQquestion

\AQquestion[⟨local options⟩]{⟨quest⟩}{{⟨prop$_1$⟩},…,{⟨prop$_n$⟩}}

This macro uses two arguments, the first defines the question, the second is a list that defines the propositions.

arguments	*default*	*definition*
quest		issue definition
prop_i		iþ proposition

Here is the list of options related to this macro.

options	*default*	*definition*
pq	0pt	adjustment of the position of the question
br	1	ranked list of correct answers

2.3 Using the minipage environment to change the width of the table

```
\begin{center}
\begin{minipage}{9cm}
\begin{alterqcm}[lq=5cm]
    ...
  \end{alterqcm}
\end{minipage}
\end{center}
```

Questions	Answers
1. Among the following proposals, which of the following allows for to affirm that the exponential function admits for asymptote the right from the equation $y = 0$?	□ $\lim\limits_{x\to+\infty} \mathrm{e}^x = +\infty$ □ $\lim\limits_{x\to-\infty} \mathrm{e}^x = 0$ □ $\lim\limits_{x\to+\infty} \dfrac{\mathrm{e}^x}{x} = +\infty$
2. $\exp(\ln x) = x$ for any x belonging to	□ $\mathbf{R}$ □ $]0\,;\,+\infty[$ □ $[0\,;\,+\infty[$

2.4 Temporary modification of \textwidth

It is possible to use tables and other structures in the question code or proposals. An example is shown below:

```
\newlength{\oldtextwidth}
```

Questions	Answers
1. the matrix $M = \begin{pmatrix} 0 & 1 \\ 1 & 1 \end{pmatrix}$ has for square	□ $\begin{pmatrix} 0 & 1 \\ 1 & 4 \end{pmatrix}$ □ $\begin{pmatrix} 1 & 2 \\ 2 & 5 \end{pmatrix}$

```
 \setlength{\oldtextwidth}{\textwidth}
 \setlength{\textwidth}{14cm}
\begin{alterqcm}[language=english,lq=88mm,symb=$\Box$]
 \AQquestion{la matrice %
 \( M=\begin{pmatrix}
        0 & 1 \\
        1 & 1 \\
\end{pmatrix} \)  a pour carré}%
{%
{\(\begin{pmatrix}
        0 & 1 \\
        1 & 4 \\
\end{pmatrix}\)},%
{\(\begin{pmatrix}
        1 & 2 \\
        2 & 5 \\
 \end{pmatrix}\)}
}
\end{alterqcm}
\setlength{\textwidth}{\oldtextwidth}
```

3 Global Environment Options alterqcm

3.1 lq : changing the width of the first column

Questions	Answers
1. Of the following proposals, which one allows of to assert that the exponential function admits for asymptote the equation line $y = 0$?	□ $\lim\limits_{x\to+\infty} \mathrm{e}^x = +\infty$ □ $\lim\limits_{x\to-\infty} \mathrm{e}^x = 0$ □ $\lim\limits_{x\to+\infty} \dfrac{\mathrm{e}^x}{x} = +\infty$
2. $\exp(\ln x) = x$ for any x belonging to	□ $\mathbb{R}$ □ $]0\,;\,+\infty[$ □ $[0\,;\,+\infty[$

Let's look at the code needed to get this table. We need to place **\usepackage**{alterqcm} in the preamble. Note that only the width of the question column is provided `lq=100mm` and that this is optional. The number of propositions is here 3 but it can vary from one question to another.

```
\begin{alterqcm}[long,lq=110mm]
 \AQquestion{Of the following proposals, which one allows  of
 to assert that the exponential function admits for asymptote
   the equation line $y = 0$ ?}
 {{$\displaystyle\lim_{x \to +\infty} \text{e}^x = + \infty$},
 {$\displaystyle\lim_{x \to -\infty} \text{e}^x = 0$},
 {$\displaystyle\lim_{x \to +\infty} \dfrac{\text{e}^x}{x} = + \infty$}}

 \AQquestion[]{exp$(\ln x) = x$ for any $x$ belonging to }
 {{$\mathbb{R}$},
 {$\big]0~;~+ \infty\big[$},
 {$\big[0~;~+\infty\big[$}
 }
 \end{alterqcm}
```

3.2 pq : global use

This time, it is necessary to move several questions, I placed a pq=2mm globally, that is to say like this :

\begin{alterqcm}[lq=85mm,pq=2mm].

All questions are affected by this option but some questions were well placed and should remain so, so locally I give them back a `pq=0mm`.

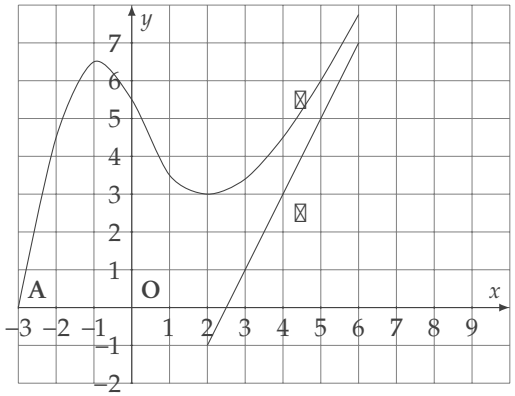
Questions	Answers
1. A bivariate statistical series. The values of x are 1, 2, 5, 7, 11, 13 and a least squares regression line equation of y to x is $y = 1.35x + 22.8$. The coordinates of the mean point are :	□ (6,5;30,575) □ (32,575;6,5) □ (6,5;31,575)
2. For any real x, the number $\dfrac{e^x - 1}{e^x + 2}$ equal to :	□ $-\dfrac{1}{2}$ □ $\dfrac{e^{-x} - 1}{e^{-x} + 2}$ □ $\dfrac{1 - e^{-x}}{1 + 2e^{-x}}$
3. With $I = \int_{\ln 2}^{\ln 3} \dfrac{1}{e^x - 1}\,dx$ and $J = \int_{\ln 2}^{\ln 3} \dfrac{e^x}{e^x - 1}\,dx$ then the number I − J equals	□ $\ln\dfrac{2}{3}$ □ $\ln\dfrac{3}{2}$ □ $\dfrac{3}{2}$

```
\begin{alterqcm}[lq=85mm,pq=2mm]
\AQquestion{For any real $x$, the number \[\dfrac{\text{e}^x - 1}
{\text{e}^x + 2}\hskip12pt \text{equal to :} \] }
{{$-\dfrac{1}{2}$},
{$\dfrac{\text{e}^{-x} - 1}{\text{e}^{-x} + 2}$},
{$\dfrac{1 - \text{e}^{-x}}{1 + 2\text{e}^{-x}}$}}
\end{alterqcm}
```

3.3 TF : True or False

V or F in french vrai ou faux ! There are only two proposals and the candidate must choose between **True** or **False** ou bien si vous préférez **Correct** and **Wrong**. This time the syntax has been streamlined. It is no longer necessary to write the list of proposals and it is enough to position **VF** by placing in the options *VF*.

Let f be a function defined and derivable on the interval $[-3\,;\,+\infty[$, increasing over the intervals $[-3\,;\,-1]$ et $[2\,;\,+\infty[$ and decreasing over the interval $[-1\,;\,2]$. We note f' its derivative function over the interval $[-3\,;\,+\infty[$.
The Γ curve representative of the f function is plotted below in an orthogonal coordinate system $(O, \vec{i}, \vec{j})$.
It passes through point A(−3 ; 0) and admits for asymptote the Δ line of equation $y = 2x - 5$.



Questions	Answers
1. For all $x \in]-3\,;\,2]$, $f'(x) \geqslant 0$.	□ **T** □ **F**
2. The F function has a maximum in 2	□ **T** □ **F**
3. $\int_0^2 f'(x)\,dx = -2$	□ **T** □ **F**

```
\begin{minipage}[t][][b]{.45\linewidth}
 Let $f$ be a function defined and derivable on the interval $\big[-3~;~+\infty\big[$,
  increasing over the interval $\big[-3~;~-1\big]$ and $\big[2~;~+\infty\big[$
  and decreasing over the interval $\big[-1~;~2\big]$.

  We note $f'$ its derivative function over the interval $[-3~;~+\infty[$.

The $\Gamma$ curve representative of the $f$ function is plotted below
  in an orthogonal system $\big(O,~\with{\imath},~\jmath}\big)$.

 It passes through the point A$(-3~;~0)$ and admits for asymptote the line
 $\Delta$ of equation $y = 2x -5$.
\end{minipage}
\begin{minipage}[t][][b]{.45\linewidth}
\null
\begin{tikzpicture}[scale=0.5,>=latex]
 \draw[very thin,color=gray] (-3,-2) grid (10,8);
 \draw[->] (-3,0) -- (10,0) node[above left] {\small $x$};
 \foreach \x in {-3,-2,-1,1,2,...,9}
    \draw[shift={(\x,0)}] (0pt,1pt) -- (0pt,-1pt)node[below] { $\x$};
 \draw[->] (0,-2) -- (0,8) node[below right] {\small $y$};
 \foreach \y/\ytext in {-2,-1,1,2,...,8}
    \draw[shift={(0,\y)}] (1pt,0pt) -- (-1pt,0pt) node[left] { $\y$};
 \draw (-0.5,-2) -- (10,8);
 \node[above right] at (-3,0) {\textbf{A}};
 \node[above right] at (0,0) {\textbf{O}};
 \node[below right] at (4,3) {$\mathbf{\Delta}$};
 \node[above right] at (4,5) {$\mathbf{\Gamma}$};
 \draw plot[smooth] coordinates{%
 (-3,0)(-2,4.5)(-1,6.5)(0,5.5)(1,3.5)(2,3)(3,3.4)(4,4.5)(5,6)(6,7.75)};
\end{tikzpicture}
\end{minipage}
\begin{alterqcm}[VF,lq=125mm]
  \AQquestion{For all $x \in ]-\infty~;~2],~f'(x) \geqslant 0$.}
  \AQquestion{The $F$ function has a maximum in $2$}
  \AQquestion{$\displaystyle\int_{0}^2 f'(x)\:\text{d}x = - 2$}
\end{alterqcm}
```

3.4 symb : symbol change

If your fonts don't have the symbol `$\square$` or `$\blacksquare$` you can use the one provided by the package or create one yourself. **`\altersquare`**, **`\dingsquare`** and **`\dingchecksquare`** are provided by alterqcm. Here is how these macros are defined.

```
\newcommand*{\altersquare}{\mbox{\vbox{\hrule\hbox to 6pt{\vrule height 5.2pt \hfil\vrule}\hrule}}}
```

you either get □ or... :

```
\newcommand*{\dingsquare}{\ding{114}}
```

which results in ❒ and finally to replace `$\blacksquare$`

```
\newcommand*{\dingchecksquare}{\mbox{\ding{114}%
\hspace{-.7em}\raisebox{.2ex}[1ex]{\ding{51}}}}
```

Let it be ☑ as a result.

```
\begin{alterqcm}[lq=90mm,symb=\altersquare]
... \end{alterqcm}
```

Full example :

Questions	Answers
1. For all $x \in]-3\,;\,2]$, $f'(x) \geqslant 0$.	❒ T ❒ F
2. The F function has a maximum in 2	❒ T ❒ F
3. $\displaystyle\int_0^2 f'(x)\,\mathrm{d}x = -2$	❒ T ❒ F

```
\begin{alterqcm}[VF,lq=125mm,symb    = \dingsquare]
\AQquestion{For all $x \in ]-3~;~2],~f'(x) \geqslant 0$.}
\AQquestion{The $F$ function has a maximum in $2$}
\AQquestion{$\displaystyle\int_{0}^2 f'(x)\:\text{d}x = - 2$}
\end{alterqcm}
```

3.5 pre, bonus, malus : automatic presentation

As you can see below, a presentation is given of the exercise with the grading.

```
\begin{alterqcm}[lq=6cm,pre=true,bonus=1,malus={0,5}]
 \AQquestion{Question}
 {{Proposition 1},
  {Proposition 2}}
 \end{alterqcm}
```

For each of the questions below, only one of the proposed answers is true. You must choose the right answer without justification.

Questions	Answers
1. Question	☐ Proposition 1 ☐ Proposition 2

3.6 sep : rule between proposals

sep=true creates a rule between the proposals.

```
  \begin{alterqcm}[lq=3cm,sep=true]
  \AQquestion{Question}
    etc..
\end{alterqcm}
```

Questions	Answers
1. Question	☐ Proposition 1
	☐ Proposition 2

3.7 num, numstyle : deletion and style of numbering

3.7.1 num=false

num=false makes the numbering of the questions disappear.

```
  \begin{alterqcm}[lq=3cm,num=false]
    \AQquestion{Question}
     etc...
  \end{alterqcm}
```

Questions	Answers
Question	☐ Proposition 1 ☐ Proposition 2

3.7.2 numstyle

numstyle=**\alph** changes the style of question numbering. The usual styles are valid here.

```
\begin{alterqcm}[lq=3cm,numstyle=\alph]
  \AQquestion{Question}
  etc...
\end{alterqcm}
```

Questions	Answers
a. Question	□ Proposition 1 □ Proposition 2

3.8 title, tone, ttwo : deletion and modification of the title line

title=false deletes the column headings.

```
\begin{alterqcm}[lq=3cm,title=false]
\AQquestion{Question}
etc...
\end{alterqcm}
```

1. Question	□ Proposition 1 □ Proposition 2

tone=titre n°1 and **ttwo=titre n°2** change the table headers

```
\begin{alterqcm}[lq=3cm,tone=titre n°1,ttwo=titre n°2]
\AQquestion{Question}
etc...
\end{alterqcm}
```

titre n°1	titre n°2
1. Question	□ Proposition 1 □ Proposition 2

3.9 noquare : square suppression

nosquare=true fait disparaître le carré ou encore la numérotation des propositions.

```
\begin{alterqcm}[lq=3cm,nosquare=true]
\AQquestion{Question}
etc...
\end{alterqcm}
```

Questions	Answers
1. Question	Proposition 1 Proposition 2

numprop=true number the proposals and **propstyle= ...** changes the numbering style.
Default, **propstyle=\alph**

```
\begin{alterqcm}[lq=3cm,numprop  = true,propstyle = \Roman]
\AQquestion{Question}
etc...
\end{alterqcm}
```

Questions	Answers
1. Question	**(I)**Proposition 1 **(II)**Proposition 2

3.10 alea : random positioning of proposals

It is preferable between two compilations to delete the auxiliary files.
Be careful, in random mode, it is not possible to obtain an answer corresponding to the initial assignment.

Questions	Answers
1. If the f function is strictly increasing on **R** then the equation $f(x)=0$ admits :	□ At most one solution □ Exactly one solution □ At least one solution

```
\begin{alterqcm}[lq=55mm,alea]
\AQquestion[pq=1mm]{If the $f$ function is strictly increasing on  $\mathbf{R}$ then the equation $f(x) = $0 admits :}
{{At least one solution},%
{At most one solution},%
{Exactly one solution}}
\end{alterqcm}
```

3.11 english, german, greek, italian, russian, chinese and unknown : language change

The order given above is that of creation. Thanks to Apostolos Syropoulos and Anastasios Dimou for enabling the use of Greek language.

```
\begin{alterqcm}[language=french,lq=55mm,alea]
```

Questions	Réponses
1. If the f function is strictly increasing on **R** then the equation equation $f(x)=0$ admits...	□ At least one solution □ Exactly one solution □ At most one solution

```
\begin{alterqcm}[language=german,lq=55mm,alea]
```

Fragen	Antworten
1. Wenn die Funktion f auf **R** streng monoton wächst, dann hat die Gleichung $f(x)=0$:	□ genau eine Lösung □ höchstens eine Lösung □ mindestens ein Lösung

对于以下各项陈述，根据陈述内容的正误选择相应的选项（正确的选择“正”，错误的选择“误”）。

问题	答案
1. $x\in]-3\,;\,2]$ 的情形下，$f'(x)\geq 0$。	❒ 正 ❒ 误
2. F 函数的最大值为 2。	❒ 正 ❒ 误
3. $\int_0^2 f'(x)\,\mathrm{d}x=-2$	❒ 正 ❒ 误

对于以下提出的各个问题，仅有一个答案是正确的，请选择你认为正确的答案（不需要提供理由）。

问题	答案
1. 问题	□ 选择 1 □ 选择 2 □ 选择 3

There's a section devoted solely to the "greek" option.

How to use **unknown** : You need to call the package with the option "unknown" then yo need to redefine some macros.

```
\usepackage[unknown]{alterqcm}
% userdefined language: unknown=spanish
\def\aqlabelforquest{Preguntas}%
\def\aqlabelforrep{Respuestas}%
\def\aqtextfortrue{\textbf{V}}
\def\aqtextforfalse{\textbf{F}}
\def\txttv{V}% V(erdadero)
\def\txttf{F}% F(also)
\def\aqfoottext{Continúa en la página siguiente\dots}
\def\aqpretxt{\vspace*{6pt}Para cada una de las preguntas siguientes, sólo una de las respuestas propuestas es verdadera. Debe elegir la respuesta correcta sin justificación.}%
\def\aqpretxtVF{Para cada una de las afirmaciones de abajo, marque la casilla \textbf{V} (la afirmación es verdadera) o la casilla \textbf{F} (la afirmación es falsa).}%

\begin{alterqcm}[language=unknown]
 \AQquestion{Question}{%
 {Proposition 1},
 {Proposition 2},
 {Proposition 3}}
\end{alterqcm}
```

Preguntas	Respuestas
1. Question	☐ Proposition 1 ☐ Proposition 2 ☐ Proposition 3

3.12 long : use of longtable

A table can arrive at the end of the page and be cut or simply be very long. This option allows you to use instead of a **tabular** an environnement **longtable**.

Here is an example from Pascal Bertolino.

Questions	Answers
1. What was the precursor language of the C language?	☐ Fortran ☐ language B ☐ Basic
2. `int a = 3 ^ 4 ;`	☐ raises 3 to the power of 4 ☐ makes an exclusive OR between 3 and 4 ☐ is not a C
3. What is the correct syntax to shift the integer 8 bits to the left? `a` ?	☐ `b = lshift(a, 8) ;` ☐ `b = 8 << a ;` ☐ `b = a << 8 ;`

4. The complete program :
`int main()`
`{ printf ("hello") ; return 0 ; \}`
	☐ display `hello`
	☐ gives an error to the compilation
	☐ gives an error in execution

5. Let's say the statement `float tab[10];` The first real in the table is ...	☐ `*tab` ☐ `&tab` ☐ `tab`
6. The line `printf("%c", argv[2][0]) ;` of `main` of `monProg` run like this : `monProg parametre`	☐ displays `p` ☐ displays nothing ☐ can cause a crash
7. What is the memory size of a `long int` ?	☐ 4 octets ☐ 8 octets ☐ it depends ...
8. Following the declaration `int * i ;`	☐ `*i` is an address ☐ `*i` is an integer ☐ `*i` is a pointer
9. One of the following choices is not a standard library of the C	☐ `stdlib` ☐ `stdin` ☐ `math`

The beginning of the code is simply

```
\begin{alterqcm}[lq=80mm,long]
\AQquestion{What was the precursor language of the C language?}
{{Fortran},
 {language B},
 {Basic}}
\end{alterqcm}
```

It is possible to modify the text that is placed at the end of the table. Just modify the command **\aqfoottext**.

```
\def\aqfoottext{continued on next page\ldots}
```

3.13 numbreak : split a mcq

This option allows either to continue the numbering of the previous table. This option was necessary before the use of the **long** option. for tables split by a page break. It can now be used for a series of tables grouped together to obtain a single MCQ.

What was the precursor language of the C language?	☐ Fortran ☐ language B ☐ Basic
`int a = 3 ^ 4 ;`	☐ raises 3 to the power of 4 ☐ makes an exclusive OR between 3 and 4 ☐ is not a C-instruction

After the declaration `int * i ;`	☐ `*i` is an address ☐ `*i` is an integer ☐ `*i` is a pointer
One of the following choices is not a standard C library	☐ `stdlib` ☐ `stdin` ☐ `math`

the code for the beginning is :

```
\begin{alterqcm}[lq=80mm,title=false,num=false,long]
\AQquestion{What was the precursor language of the C language?}
{{Fortran},
 {language B},
 {Basic}}

\verbdef\argprop|int a = 3 ^ 4 ;|
\AQquestion{\argprop}
{{raises 3 to the power of 4},
 {makes an exclusive OR between 3 and 4},
 {is not a C-instruction}}
\end{alterqcm}
```

For the second part, we set **numbreak** to 2 because the first board had 2 questions. In a future version, we will not have to count the questions anymore.

```
\begin{alterqcm}[lq=80mm,title=false,num=false,numbreak=2,long]
\AQquestion{Following the declaration \texttt{int * i} ;}
{{\texttt{*i} is an address},
 {\texttt{*i} is an integer},
 {\texttt{*i} is a pointer}}

\AQquestion{One of the following choices is not a standard C library}
{{\texttt{stdlib}},
 {\texttt{stdin}},
 {\texttt{math}}}
\end{alterqcm}
```

3.14 correction : Correction of a mcq

It is possible to create an answer key by using the **correction** option and indicating the correct answer(s) using a local parameter **br**. Here is an example:

Questions	Answers
1. For all $x \in]-3\,;\,2]$, $f'(x) \geqslant 0$.	☑ T ❒ F
2. The F function has a maximum in 2	❒ T ☑ F
3. $\displaystyle\int_0^2 f'(x)\,\mathrm{d}x = -2$	❒ T ☑ F

```
\begin{alterqcm}[VF,lq=125mm,correction,
                 symb    = \dingsquare,
                 corsymb = \dingchecksquare]
\AQquestion[br=1]{For all $x \in ]-3~;~2],~f'(x) \geqslant 0$.}
\AQquestion[br=2]{The $F$ function has a maximum in $2$}
\AQquestion[br=2]{$\displaystyle\int_{0}^2 f'(x)\:\text{d}x = - 2$}
\end{alterqcm}
```

3.15 Modification du symbole corsymb

\dingchecksquare is provided by alterqcm. Here is how this macro is defined.

```
\newcommand*{\dingchecksquare}{\mbox{\ding{114}%
\hspace{-.7em}\raisebox{.2ex}[1ex]{\ding{51}}}}
```

Let's consider checksquare as a result.

```
\begin{alterqcm}[lq=90mm,symb=\altersquare,corsymb=\dingchecksquare]
  ...
\end{alterqcm}
```

Full example :

Questions	Answers
1. For all $x \in]-3\,;\,2]$, $f'(x) \geqslant 0$.	☑ T ❒ F
2. The F function has a maximum in 2	❒ T ☑ F
3. $\displaystyle\int_0^2 f'(x)\,\mathrm{d}x = -2$	❒ T ☑ F

```
\begin{alterqcm}[VF,lq=125mm,correction,
                 symb    = \dingsquare,
                 corsymb = \dingchecksquare]
\AQquestion[br=1]{For any $x \in ]-3~;~2],~f'(x) \geqslant 0$.}
\AQquestion[br=2]{The $F$ function has a maximum in $2$}
\AQquestion[br=2]{$\displaystyle\int_{0}^2 f'(x)\:\text{d}x = - 2$}
```

```
\end{alterqcm}
```

3.16 br={…} : corrected with several correct answers

A list of correct answers is given

Questions	Answers
1. Question	■ Proposition 1 □ Proposition 2 ■ Proposition 3

```
\begin{alterqcm}[correction]
\AQquestion[br={1,3}]{Question}
{%
{Proposition 1},
{Proposition 2},
{Proposition 3}%
}
\end{alterqcm}
```

3.17 transparent : creation of a transparent slide showing the answers.

This macro makes it possible to create a document identical to the original but without the questions and with a circle indicating the good proposals.

Questions	Answers
1.	○
2.	○ ○
3.	○ ○
4.	○

```
\begin{alterqcm}[transparent,correction,corsymb=\dingchecksquare,lq=100mm]
\AQquestion[br=2,pq=3mm]{Which of the following proposals is that
 which allows us to affirm that the exponential function admits for asymptote  the equation line  $y = 0$ ?}
{{$\displaystyle\lim_{x \to +\infty} \dfrac{\text{e}^x}{x} = + \infty$},
{$\displaystyle\lim_{x \to +\infty} \text{e}^x = + \infty$},
{$\displaystyle\lim_{x \to -\infty} \text{e}^x = 0$}
}

\AQquestion[br={1,3}]{exp$(\ln x) = x$ for any $x$ belonging to }
{{$\mathbf{R}$},
{$\big]0~;~+ \infty\big[$},
{$\big[0~;~+\infty\big[$}
}

\AQquestion[br={1,2}]{exp$(\ln x) = x$ for any $x$ belonging to }
{{$\mathbf{R}$},
{$\big]0~;~+ \infty\big[$},
{$\big[0~;~+\infty\big[$}
}\AQquestion[br=2,pq=3mm]{Which of the following proposals is that
 which allows us to affirm that the exponential function admits for asymptote
 the equation line $y = 0$ ?}
{{$\displaystyle\lim_{x \to +\infty} \dfrac{\text{e}^x}{x} = + \infty$},
{$\displaystyle\lim_{x \to +\infty} \text{e}^x = + \infty$},
{$\displaystyle\lim_{x \to -\infty} \text{e}^x = 0$}
}
\end{alterqcm}
```

4 Local options of the macro \AQquestion

4.1 Local use of pq

The following table is obtained with the options lq=85mm and size=\wide. The questions are misplaced. The local option **pq** solves this problem, the text can be moved 1mm upwards with **\AQquestion[pq=1mm]**. and by 6mm for the second.

Questions	Answers
1. If the function f is strictly increasing on **R** then the equation $f(x)=0$ admits :	☐ At least one solution ☐ [At most one solution] ☐ Exactly one solution
2. If the f function is continuous and positive on $[a\ ;\ b]$ and $\mathscr{C}_f$ its representative curve in an orthogonal system. In units of area, the area $\mathscr{A}$ of the domain delimited by $\mathscr{C}_f$, the abscissa axis and the lines of equations $x=a$ 5 and $x=b$ is given by the formula :	☐ $\mathscr{A}=\int_b^a f(x)\,\mathrm{d}x$ ☐ $\mathscr{A}=\int_a^b f(x)\,\mathrm{d}x$ ☐ $\mathscr{A}=f(b)-f(a)$

Here is the corrected version

Questions	Answers
1. If the f function is strictly increasing on **R** then the equation $f(x)=0$ admits...	☐ At least one solution ☐ At most one solution ☐ Exactly one solution
2. If the f function is continuous and positive on $[a\ ;\ b]$ and $\mathscr{C}_f$ its representative curve in an orthogonal system. In area units, the $\mathscr{A}$ area of the domain delimited by $\mathscr{C}_f$, the abscissa axis and the lines of equations $x=a$ and $x=b$ is given by the formula:	☐ $\mathscr{A}=\int_b^a f(x)\,\mathrm{d}x$ ☐ $\mathscr{A}=\int_a^b f(x)\,\mathrm{d}x$ ☐ $\mathscr{A}=f(b)-f(a)$

```
\begin{alterqcm}[lq=55mm,size=\large]
\AQquestion[pq=1mm]{If the $f$ function is strictly increasing on  $\mathbf{R}$
then the equation $f(x) =0 $ admits...
{{{At least one solution},
[At most one solution],
{Exactly one solution}}
```

```
\AQquestion[pq=6mm]{If the $f$ function is continuous and positive on $[a~ ;~ b]$ and $\mathcal{C}_{f}$ its rep-
resentative curve in an orthogonal system.
  In units of area, the area $\mathcal{A}$ of the domain delimited by $\mathcal{C}_{f}$, the abscissa axis and the lines of equa-
tions $x = a$ and $x = b$ is given by the formula: }
 {{$\mathcal{A}= \displaystyle \int_{b}^a f(x)\ \text{d}x$},
 {$\mathcal{A}= \displaystyle \int_{a}^b f(x)\ \text{d}x$},
 {$\mathcal{A} = f(b) - f(a)$}}
 \end{alterqcm}
```

4.2 Global and local use of pq

This time, it is necessary to move several questions, I placed a `pq=2mm` globally, that is to say like this :**`\begin{alterqcm}[lq=85mm,pq=2`**
All questions are affected by this option but some questions were well placed and should remain so, so locally I give them back a `pq=0mm`.

Questions	Answers
1. A bivariate statistical series. The values of x are 1, 2, 5, 7, 11, 13 and a least squares regression line equation of y to x is $y = 1.35x + 22.8$. The coordinates of the mean point are :	□ (6,5;30,575) □ (32,575;6,5) □ (6,5;31,575)
2. (u_n) is an arithmetic sequence of reason −5. Which of these statements is true?	□ For all n, $u_{n+1} - u_n = 5$ □ $u_{10} = u_2 + 40$ □ $u_3 = u_7 + 20$
3. Equality $\ln(x^2-1) = \ln(x-1) + \ln(x+1)$ is true	□ For all x in $]-\infty\ ;\ -1[\cup]1\ ;\ +\infty[$ □ For all x in $\mathbf{R} - \{-1\ ;\ 1\}$. □ For all x in $]1\ ;\ +\infty[$
4. For all x, the number $\dfrac{\text{e}^x - 1}{\text{e}^x + 2}$ equal to :	□ $-\dfrac{1}{2}$ □ $\dfrac{\text{e}^{-x} - 1}{\text{e}^{-x} + 2}$ □ $\dfrac{1 - \text{e}^{-x}}{1 + 2\text{e}^{-x}}$
5. Let $\text{I} = \displaystyle\int_{\ln 2}^{\ln 3} \frac{1}{\text{e}^x - 1}\,\text{d}x$ and $\text{J} = \displaystyle\int_{\ln 2}^{\ln 3} \frac{\text{e}^x}{\text{e}^x - 1}\,\text{d}x$ then the number I − J is equal to	□ $\ln\dfrac{2}{3}$ □ $\ln\dfrac{3}{2}$ □ $\dfrac{3}{2}$

```
\begin{alterqcm}[lq=85mm,pq=2mm]
 \AQquestion[pq=0mm]{Equality $\ln (x^2 - 1) = \ln (x - 1) + \ln (x+1)$
  is true}
 {{For all $x$ in  $]- \infty~;~-1[ \cup]1~;~+ \infty[$},
 {For all $x$ in $\mathbf{R} - \{-1~ ;~ 1\}$.},
 {For all $x$ in $]1~ ;~+\infty[$}}
 \AQquestion{For any real $x$, the number \[\dfrac{\text{e}^x - 1}
 {\text{e}^x + 2}\hskip12pt \text{equal to :} \] }
 {{$-\dfrac{1}{2}$},
 {$\dfrac{\text{e}^{-x} - 1}{\text{e}^{-x} + 2}$},
 {$\dfrac{1 - \text{e}^{-x}}{1 + 2\text{e}^{-x}}$}}
```

```
\end{alterqcm}
```

4.3 correction and br : rank of good answer

First of all, it is necessary to ask for an answer key. To do this, just include the option **correction** which is a boolean, thus set to **true**. Then in each question, it is necessary to give the list of correct answers. For example, with **br=1** or **br={1,3}**.

Here is the previous year's correction:

Questions	Answers
1. For all $x \in]-3\,;\,2]$, $f'(x) \geqslant 0$.	■ T □ F
2. The F function has a maximum in 2	□ T ■ F
3. $\int_0^2 f'(x)\,\mathrm{d}x = -2$	□ T ■ F

```
\begin{alterqcm}[VF,correction,lq=125mm]
 \AQquestion[br=1]{For all $x \in ]-3~;~2],~f'(x) \geqslant 0$.}
 \AQquestion[br=2]{The $F$ function has a maximum in $2$}
 \AQquestion[br=2]{$\displaystyle\int_{0}^2 f'(x)\:\text{d}x = - 2$}
\end{alterqcm}
```

5 Complementary macros

5.1 \AQmessage : two-column message

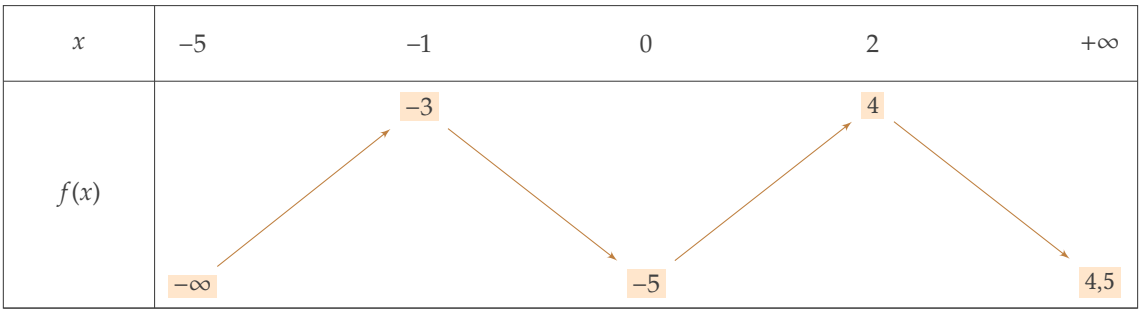
It allows to insert in the table on the two columns, additional information for the candidate.

In the following table, it is necessary to give indications and clarifications on the statement. This is done using the command **\AQmessage**. I have used the package **tkz-tab.sty** for this message as well as *AQmessage* for some proposals, in order to make the proposal fit on several lines. This is necessary if one does not want to leave the table or if one does not want to restrict the space given to the questions. This shows that many environments can be used in questions, messages and proposals at the same time.

\AQmessage{⟨texte⟩}

argument	*default*	*definition*
texte		corps du message

This macro uses only one argument : the text of the message. It can contain any kind of environment except, unfortunately, an array designed with ***tablor****. However, it is possible to import an array designed with* ***tablor*** *with the macro* ***\includegraphics***[1].

Questions	Answers
Let f be a function defined and derivable over the interval $]-5\,;\,+\infty[$ whose table of variations is given below :  We designate by $\mathscr{C}$ the curve representative of f.	
1. In the interval $]-5\,;\,+\infty[$, the equation $f(x)=-2$ admits	☐ only one solution ☐ two solutions ☐ four solutions

```
\begin{alterqcm}[lq=95mm,pre=false]
 \AQmessage{ Let $f$ be a function defined and derivable on the interval%.
  $]-5~;~+\infty[$ whose table of variations is given below:
  \begin{center}\begin{tikzpicture}
     \tkzTabInit{$x$/1,$f(x)$/3} {$-5$,$-1$,$0$,$2$,$+\infty$}
     \tkzTabVar{-/$-\infty$ ,+/$-3$,-/$-5$,+/$4$,-/${4,5}$}%
  \end{tikzpicture}\end{center}
 It is designated by $\mathcal{C}$  the curve representative of $f$.}
\AQquestion{Over the interval $]-5~;~+\infty[$,the equation $f(x) = -2$ admits}
```

1 package macro **graphicx**

```
 {{only one solution},
  {two solutions},
  {four solutions}}
\end{alterqcm}
```

5.2 \AQms : use of invisible line

\AQms(height,depth)

argument	*default*	*definition*
height		line height
depth		line depth

It's an invisible line useful if it is necessary to make more space around a proposal.

It should not be used!

```
\def\AQms(#1,#2){\vrule height #1pt depth #2pt width 0pt}
```

Questions	Answers
1. Question	☐ Proposition 1 ☐ Proposition 2 ☐ Proposition 3

```
\begin{minipage}[]{7.5cm}
\begin{alterqcm}%
[lq=4cm]
\AQquestion{Question}
 {%
{Proposition 1},
{Proposition 2\AQms(16,14)},
{Proposition 3}}
\end{alterqcm}
\end{minipage}
```

5.3 \InputQuestionList : Multiple choice from a list of files

\InputQuestionList{⟨path⟩}{⟨prefix⟩}{⟨list of integers⟩}

argument	*default*	*definition*
path		path that leads to the folder containing the files
prefix		file names : <prefix><integer>.tex
list of integers		list of integers corresponding to the files

This macro allows you to insert questions recorded in files into a table. A file can contain one or more questions with the corresponding propositions. ***path*** *is the path to the folder containing the files.* ***prefix*** *is used to name the files, an integer uniquely determines the file.*

Let's say the file **qcm-1.tex**

1 see the macro **\strut**

```
\AQquestion{What was the precursor language of the C language?}
{{Fortran},
 {language B},
 {Basic}}
```

Either the file **qcm-2.tex**

```
\verbdef\argprop|int a = 3 ^ 4 ;|
\AQquestion{\argprop}
{{raises 3 to the power of 4},
 {makes an exclusive OR between 3 and 4},
 {is not a C}}
```

Suppose we create a series of files in a folder `iut` with the following names **qcm-1.tex**, **qcm-2.tex**, ...,**qcm-**n**.tex**. The prefix to name these files is **qcm-**.

The path to this folder is for example `/examples/latex/iut/`.

The result is:

Questions	Answers
1. `int a = 3 ^ 4 ;`	☐ raises 3 to the power of 4 ☐ makes an exclusive OR between 3 and 4 ☐ is not a C
2. What was the precursor language C ?	☐ Fortran ☐ Language B ☐ Basic

```
\newcommand*{\listpath}{/Users/ego/Desktop/waiting/alterqcm_new/examples/iut/}
\begin{alterqcm}[lq=80mm]
   \InputQuestionList{\listpath}{qcm-}{2,1}
\end{alterqcm}
```

5.4 The command \AQannexe

\AQannexe[⟨local options⟩]{⟨start⟩}{⟨end⟩}{⟨col⟩}

arguments	*default*	*definition*
start		first row number
end		last row number
col		number of proposals

This macro uses three arguments. These are three integers. ***start*** *is the row of the first row,* ***end*** *is the final row and* ***col*** *is the number of propositions.*

Options	*default*	*definition*
VF	false	true or false; displays T and F
propstyle	\arabic	proposal numbering style

VF *allows to display V and F to identify the proposals but it is necessary that* ***col*** *is equal to two*

```
\documentclass{article}
\usepackage[utf8]{inputenc}
\usepackage[T1]{fontenc}
\usepackage{lmodern}
\usepackage{alterqcm,fullpage}
\thispagestyle{empty}

\begin{document}
NAME:

FIRST NAME:

\vspace{1cm}{ \Large
\AQannexe{1}{10}{2}\hspace{2cm}
\AQannexe[propstyle=\alph]{11}{20}{3}}
\end{document}
```

N	1	2
1		
2		
3		
4		
5		
6		
7		
8		
9		
10		

N	a	b	c
11			
12			
13			
14			
15			
16			
17			
18			
19			
20			

6 Additional examples

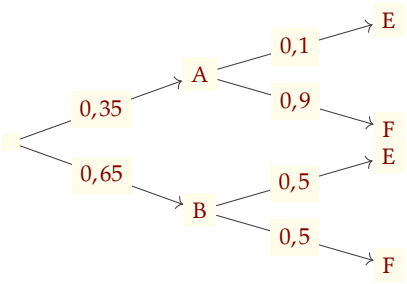
6.1 The symbolists: use of the macro \includegraphics

Questions	Answers
1. Among the three paintings opposite, which is the one painted by **Gustave Moreau**	**(a)** 
	(b) 
	(c) 
2. The following picture was painted by which of these three painters? 	**(a)**Gustav Klimt
	(b) Carlos Schwabe
	(c) Odilon Redon

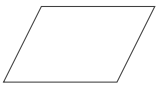
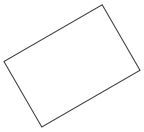
```
\begin{alterqcm}[lq=8cm,numprop=true,sep]
\AQquestion[pq=2 cm]{Of the three paintings, which is the one painted by \textbf{Gustave Moreau}\vfill}%
{{%
\hfil\includegraphics[scale=.25]{The_Wounded_Angel_-_Hugo_Simberg.jpg}\hfil
},{%
\hfil\includegraphics[scale=.5]{180px-Gustave_Moreau_007.jpg}\hfil
},{%
\hfil\includegraphics[scale=.4]{240px-Mort_du_fossoyeur.jpg}\hfil}}
 \AQquestion[pq=1 cm]{The following painting, was painted by which of these three painters?\\
\hfil\includegraphics[height=3in]{240px-Mort_du_fossoyeur.jpg}\hfil}%
{{Gustav Klimt},{Carlos Schwabe},{Odilon Redon}}
\end{alterqcm}
```

6.2 Using a tikzpicture environment in a question

For each of the questions below, only one of the proposed answers is true. You must choose the right answer without justification.

Questions	Answers
The three trees given below represent probabilistic situations. The numbers shown on the various arrows are probabilities, and,in the second level, conditional probabilities. Thus for the given tree in question 1 : $0,35 = P(A)$ and $0,1 = P_A(E)$.	
1. The probability of event E is equal to : 	□ 0,5 □ 0,1 □ 0,6 □ 0,36

```
\begin{alterqcm}[lq=120mm,pre=true,pq=3mm]
 \AQmessage{The three trees given below represent probabilistic situations.
  The numbers shown on the different arrows are probabilities, and,
  in the second level, conditional probabilities. Thus for the given tree
  in question 1: $0,35 = P(A)$ and $0,1 =  P_{\text{A}}(E)$.}
\AQquestion{The probability of event E is equal to : \\
\begin{tikzpicture}
...
\end{tikzpicture}}
{{$0,5$},%
{$0,1$},%
{$0,6$},%
{$0,36$}}
\end{alterqcm}
```

Questions	Answers
1. Among the figures opposite, indicate the one that is a rhombus. :	**(a)** 
	(b) 
	(c) 

```
\begin{alterqcm}[lq=8cm,numprop=true,sep]
\AQquestion{Among the figures opposite, indicate the one that is a rhombus. :}
{{\hspace{1cm}  \begin{minipage}{5cm} \begin{tikzpicture}
  \draw (0,0)--(1.5,0)--(2,1)--(.5,1)--cycle;
\end{tikzpicture} \end{minipage}},
{\hspace{1cm}  \begin{minipage}{5cm} \begin{tikzpicture}
   \draw[rotate=30] (0,0) rectangle (1.5,1); \end{tikzpicture} \end{minipage}},
{\hspace{1cm}  \begin{minipage}{5cm} \begin{tikzpicture}
   \draw (0,0) rectangle (1,1); \end{tikzpicture} \end{minipage} }}
\end{alterqcm}
```

6.3 Use of a array environment in the proposals

It is possible to use tables and other structures in the question code or proposals. An example is shown below:

Questions	Answers
1. The couple $(1\ ;\ -1)$ is a solution of	□ $\begin{cases} 0,75a+0,5b &= 0,25 \\ 0,25a+0,5b &= -0,25 \end{cases}$ □ $\begin{cases} a &= 0,75a+0,5b \\ b &= 0,25a+0,5b \end{cases}$ □ $\begin{cases} 0,75a-0,5b &= 0,25 \\ 0,5a+0,25b &= -0,25 \end{cases}$

```
\begin{alterqcm}[lq=88mm,symb=$\Box$]
\AQquestion{The couple $(1~;~-1)$ is a solution of }
{%
{$ \left\lbrace
\begin{array}{ll}
 0,75a + 0,5b &= 0,25 \\
 0,25a + 0,5b &=-0,25
\end{array}\right.$},
{$ \left\{
\begin{array}{ll}
 a &=  0,75a +0,5b \\
 b &=  0,25a +0,5b
\end{array}\right.$},
{$ \left\lbrace
\begin{array}{ll}
 0,75a - 0,5b &= 0,25 \\
 0,5a + 0,25b &=-0,25
\end{array}\right.$}
}
\end{alterqcm}
```

6.4 Use of code verbatim in questions and proposals

Here is an example from Pascal Bertolino. It is preferable to use as Pascal did the macro **\texttt**, otherwise avoid the use of the mode `verbatim`. We will see on the next page how to proceed if this mode is really necessary.

1. What was the precursor language of the C language?	☐ Fortran ☐ Language B ☐ Basic
2. `int a = 3 ^ 4 ;`	☐ raises 3 to the power of 4 ☐ makes an exclusive OR between 3 and 4 ☐ is not a C
3. What is the correct syntax to shift the integer 8 bits to the left? `a` ?	☐ `b = lshift(a, 8) ;` ☐ `b = 8 << a ;` ☐ `b = a << 8 ;`

4. The complete program:
`int main()`
`{ printf ("hello") ; return 0 ; \}`
	☐ displays `hello`
	☐ gives an error to the compilation
	☐ gives an error in execution

5. Let's say the declaration `float tab[10];` The first real in the table is ...	☐ `*tab` ☐ `&tab` ☐ `tab`
6. The line `printf("%c", argv[2][0]) ;` of `main` of `monProg` run like this : `monProg parametre`	☐ displays `p` ☐ displays nothing ☐ can cause a crash
7. What is the memory size of a `long int` ?	☐ 4 octets ☐ 8 octets ☐ ça dépend ...
8. Following the declaration `int * i` ;	☐ `*i` is an address ☐ `*i` is an integer ☐ `*i` is a pointer
9. One of the following choices is not a standard C library	☐ `stdlib` ☐ `stdin` ☐ `math`

Let's look at the source code

the simplest way is often to use the command **\texttt**

```
\AQquestion{Following the declaration \texttt{int * i} ;}
{{\texttt{*i} is an address},
{\texttt{*i} is an integer},
{\texttt{*i} is a pointer}}
```

```
\AQquestion{The line \texttt{printf("\%c", argv[2][0]) ;}
 of \texttt{main} of  \texttt{monProg} run like this :
\texttt{monProg parametre }}
{{displays \texttt{p}},
```

```
{displays nothing},
{can cause a crash}}
```

Alternatively, we can load the **verbdef** package: verbdef

```
\usepackage{verbdef}
```

```
\verbdef\argprop|int a = 3 ^ 4 ;|
\AQquestion{\argprop}
{{raises 3 to the power of 4},
{does an exclusive OR between 3 and 4},
 {is not a C-instruction}}
```

More than one variable may be required:

```
\verbdef\arg|float tab[10]|
\verbdef\propa|*tab|\global\let\propa\propa
\verbdef\propb|&tab|\global\let\propb\propb
\verbdef\propc|tab|\global\let\propc\propc
\AQquestion{Either the declaration  \arg ; \\
The first real in the table is \ldots}
{{\propa},
 {\propb},
 {\propc}}
```

7 Points assigned to an MCQ

It is possible to assign points to an MCQ using the rudimentary macro **\AQpoints**.

7.1 Example

```
\AQpoints{10}
\begin{alterqcm}[symb = \dingsquare, lq=7cm]
  \AQquestion{If \numprint{3,24} is the truncation of $x$ to the hundredth..., then we're sure that :}
{%
  {\begin{minipage}[t]{\linewidth-1cm}
     $3,235\leqslant x <3,245$\\
   \end{minipage}} ,
  {\begin{minipage}[t]{\linewidth-1cm}
     $3,24\leqslant x <3,25$\\
    \end{minipage}} ,
  {\begin{minipage}[t]{\linewidth-1cm}
     $x$ is closer to \numprint{3,24} than \numprint{3,25}
   \end{minipage}}}
\end{alterqcm}
```

10

Questions	Answers
1. Si 3.24 is the truncation of x to the hundredth..., then we're sure that :	❒ $3,235 \leqslant x < 3,245$ ❒ $3,24 \leqslant x < 3,25$ ❒ x is closer to 3.24 than 3.25

8 Known issues and FAQs

8.1 Incompatibility with colortbl.sty

The problem is that **colortbl.sty** is sometimes incompatible with the command **multicolumn**. The text used in the **multicolumn** command should contain only one paragraph. Simply do not use the **AQmessage** command. One solution is to interrupt the quiz to display what you want and then resume the table.

8.2 FAQ

8.2.1 Translation of commands

Some commands can be translated or modified such as : **\aq@pre** and **\aq@preVF**, all you have to do is use **\renewcommand**

```
\makeatletter
 \renewcommand{\aq@pre}{Pour chacune des questions ci-dessous, une seule des
  r\'eponses propos\'ees est exacte. Vous devez  cocher la r\'eponse exacte
   sans justification.
 Une bonne r\'eponse rapporte \textbf{\cmdAQ@global@bonus\ point}. Une
  mauvaise r\'eponse enl\`eve \textbf{\cmdAQ@global@malus\ point}.  L'absence
  de r\'eponse ne rapporte ni n'enl\`eve aucun point. Si le total des points
  est n\'egatif, la note globale attribu\'ee \`a l'exercice est \textbf{0}.}%
\makeatother
```

9 Greek version [Apostolos Syropoulos & Anastasios Dimou]

9.1 Εισαγωγή

Ο Alain Matthes μας έχει συνηθίσει σε ενδιαφέροντα πακέτα για το LaTeX , που είναι μάλιστα πολύ σχετικά με τα δικά μας προγράμματα, το στυλ και το ύφος τους. Ένα τέτοιο παράδειγμα είναι και το `tkz-tab`, που παρουσιάστηκε πέρυσι στο `https://tassosdimou.gr/variation-table`.

Το πακέτο alterqcm είναι ακόμη ένα πακέτο του Alain Matthes για το LaTeX που θα μας βοηθήσει στη κατασκευή καλαίσθητων διαγωνισμάτων με ερωτήσεις πολλαπλής επιλογής και σωστού-λάθους.

Το alterqcm τροποποιήθηκε από τους Απόστολο Συρόπουλο και Τάσσο Δήμου έτσι, ώστε να προσαρμοστεί στα δεδομένα του ελληνικού εκπαιδευτικού συστήματος.

Το άρθρο αναπτύσσει με λεπτομέρειες και πολλά παραδείγματα τις δυνατότητες του alterqcm. Δίνει οδηγίες για τη χρήση του και στο τέλος θα δοθούν μερικά παραδείγματα διαγωνισμάτων.

9.2 Εγκατάσταση του πακέτου

Θα υποδείξουμε έναν απλό τρόπο εγκατάστασης του πακέτου. Δημιουργούμε ένα φάκελο, στον οποίο θα αποθηκευτούν όλα τα αρχεία, που θα επεξεργαστούμε, μελετώντας το alterqcm. Με άλλα λόγια, στον φάκελο αυτόν αποθηκεύουμε τα αρχεία `.tex`, τις εικόνες που θα χρησιμοποιηθούν και το αρχείο `alterqcm.sty`, που θα κατεβάσουμε από τη διεύθυνση `https://ctan.org/pkg/alterqcm?lang=en`. Το πακέτο θα φορτωθεί με την επιλογή `greek`, δηλαδή θα δώσουμε την εντολή:

```
\usepackage[greek]{alterqcm}
```

Όλα τα αρχεία θα έχουν την κλασσική δομή των αρχείων `.tex`.

Στο πρώτο μέρος, το προοίμιο, θα τοποθετήσουμε τα:

```
\documentclass[11pt,a4paper]{article}
\usepackage{xltxtra}
\usepackage{xgreek}
\usepackage{mathtools}
\usepackage{amsthm}
\usepackage{amssymb}
\usepackage{unicode-math}
\usepackage{xkeyval}
\usepackage{multirow,longtable}
\usepackage[greek]{alterqcm}
\usepackage{tkz-tab}
%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%
\parindent=0pt
\setmainfont[Mapping=tex-text,Ligatures=Common]{Minion Pro}
\setmathfont[Scale=MatchUppercase]{Asana Math}
```

Apostolos Syropoulos, and Anastasios Dimou

Questions	Answers
1. Ερώτηση	□ Επιλογή 1 □ Επιλογή 2 □ Επιλογή 3

Ερωτήσεις	Απαντήσεις
1. Ισχύει ότι $(\alpha+\beta)^2=\alpha^2+\beta^2$	□ Σ □ Λ
2. Αν $\alpha\cdot\beta\geq 0$, τότε $\sqrt{\alpha\cdot\beta}=\sqrt{\alpha}\cdot\sqrt{\beta}$	□ Σ □ Λ
3. Είναι $\alpha=\alpha$, για κάθε $x\in\mathbb{R}$	□ Σ □ Λ