An overview of the *schl* package

`schl` is a XeLaTeX package that provides commands and environments suitable for document types that appear in a classroom enviromnent. It's development is based on the Greek school educational practice, but it may be usefull in other contexts also. This document offers a quick view of working examples for `schl`'s marcos. If we load the package passing the parameter `greek`, several macros will be printed in Greek. These are defined in `languages/sch-greek.def`. If you want to set them in a different language modify the `languages/sch-template.def` file.

1. Blank space is designated with the macros `\lowerdots` and `\blankspace`.

code	*result*
`Small spaces \lowerdots{3} and \blankspace {2em}.`	Small spaces ... and ____ .
`Fill this bigger \lowerdots{20} space. And this one \blankspace{15em}.`	Fill this bigger ..... space. And this one _____ .
`Change the vertical position \lowerdots [0.5ex]{10} and \blankspace[-2.0ex]{5em}.`	Change the vertical position ····· and _____ .
`Also in mathematical expressions $\cos\ frac\pi4 = \lowerdots{4}$ and $\cos\frac\ pi4 = \blankspace{2em}$.`	Also in mathematical expressions $\cos \frac{\pi}{4} = \ldots$. and $\cos \frac{\pi}{4} =$ ____.

2. With the environment `exercise` you can typeset exercises.

code	*result*
`\begin{exercise}` `\item Write all prime integers that are less or equall to $100$.` `\item We 've bought 120 watermelons from a local grocery shop. The total weight was $360\, kg$ and the watermelons were sold for $0.5\euro$ per kg. The grocer was highly delighted from this and decided to dedicate himself in the black art of Mathematics. Furthermore, he offered as a 2.5% discount. How much money did we gave for the watermelons?` `\item Prove that the sum of the angles of a triangle equals 180°.` `\end{exercise}`	**Exercise 1.** Write all prime integers that are less or equall to 100. **Exercise 2.** We 've bought 120 watermelons from a local grocery shop. The total weight was $360\,kg$ and the watermelons were sold for 0.5€ per kg. The grocer was highly delighted from this and decided to dedicate himself in the black art of Mathematics. Furthermore, he offered as a 2.5% discount. How much money did we gave for the watermelons? **Exercise 3.** Prove that the sum of the angles of a triangle equals 180°.

3. The environment `schltask` can be used for summative tests.

code	*result*

`\begin{schltask}`
`\item Solve the equation $x^2 - 3x + 2 = 0 $.`
`\item Prove the Pythagorean theorem.`
`\item Prove that the medians of a triangle have a common point.`
`\end{schltask}`
	TASK 1 Solve the equation $x^2 - 3x + 2 = 0$.
	TASK 2 Prove the Pythagorean theorem.
	TASK 3 Prove that the medians of a triangle have a common point.

4. The macro `\answer` is used to typeset the answer of an exercise.

code	*result*

`\begin{exercise}`
`\item Find the sum $1 + 1$.\answer[\hfill\footnotesize]{2}`
`\end{exercise}`
	Exercise 1. Find the sum $1 + 1$. (Uns.: 2)

5. With the macro `\solution`, we write the solution of an exercise.

code	*result*

`\begin{exercise}`
`\item Prove that there are infinite prime numbers.`
`\solution{%`
`Assume that there is a finite number of primes $p_1,\ldots,p_\nu$. Define the integer\ldots}`
`\end{exercise}`
	Exercise 1. Prove that there are infite prime numbers.
	Solution
	Assume that there is a finite number if primes $p_1, \ldots, p_\nu$. Define the integer...

6. Set points to exercises with the macro `\points`:

code

```
\begin{schltask}
\item \points{25}\par
  Prove the theorem of Bolzano.
\item \points{11}\par
  Let $f:\mathbb{R}\rightarrow\mathbb{R}$
      be a function with $f(x) = \frac1{x
      -1}$.
  \begin{enumerate}
  \item \points[\itshape]{10} Find its
      domain.
  \item \points[\itshape]{1} Calculate the
       value $f(3)$.
  \end{enumerate}
\end{schltask}
```

result

TASK 1 **(points 25)**

Prove the theorem of Bolzano.

TASK 2 **(points 11)**

Let $f : \mathbb{R} \to \mathbb{R}$ be a function with $f(x) = \frac{1}{x-1}$.

(α′) *(points 10)* Find its domain.

(β′) *(point 1)* Calculate the value $f(3)$.

7. Environment `question`:

code

```
\begin{question}
 \item Is there a bigger real number?
 \item Is there a smallest positive real
     number?
\end{question}
```

result

Question 1. Is there a bigger real number?

Question 2. Is there a smallest positive real number?

8. Hints with the macro `\hint`:

code

```
\begin{exercise}
\item Prove that between two rational
    numbers there is an irrational.
  \hint[\par\noindent\scriptsize]{%
    Assume rationals $\rho_1 < \rho_2$. We
        define the real number $\frac{\
       rho_1 + \rho_2}2$. Then, $x$ is\
       ldots}
\item Prove that $(\alpha + \beta)^2 = \
    alpha^2 + 2 \alpha \beta + \beta^2$.
  \hint[\par\noindent\scriptsize]{%
    We have $(\alpha + \beta)^2 = (\alpha
       + \beta) \cdot (\alpha + \beta) =
       \ldots$}
\end{exercise}
```

result

Exercise 1. Prove that between two rational numbers there is an irrational.

Hint: Assume rationals $\rho_1 < \rho_2$. We define the real number $\frac{\rho_1+\rho_2}{2}$. Then, x is...

Exercise 2. Prove that $(\alpha + \beta)^2 = \alpha^2 + 2\alpha\beta + \beta^2$.

Hint: We have $(\alpha + \beta)^2 = (\alpha + \beta) \cdot (\alpha + \beta) = \ldots$

9. Environment `multichoice` is for multiple choice questions:

A′. choice 1 B′. choice 2

Another example

Α΄. choice 1 Β΄. choice 2 Γ΄. choice 3

Or

1) this is a very long choice 1 **2)** this is an even longer choice 2
3) this is a remarkably long choice 3

10. Environment `tickchoice`. Horizontal

☐ choice A ☐ choice B ☐ choice C

and vertical

- ☐ choice A
- ☐ choice B
- ☐ choice C

11. A wish for good luck

Good luck!

Setting the text. Macro `\letterspace` sets the space between adjucent letters

ΚΑΛΗ ΤΥΧΗ

12. Write the name and date:
Fullname:
Date:

Also, with dots or a line for blank space:
Fullname: ……
Date: _____

We could use
Date: 28 Μαΐου 2020

13. Exercise deadline:
Deadline: 2/2/2058

14. Set the duration of a test:
Duration: 10’ or *Duration*: 10’ or Duration: 10’

15. Add a remark in a document:
Remark: Αυτή είναι μια παρατήρηση.
Remark: Αυτή είναι μια παρατήρηση.
Remark: Αυτή είναι μια παρατήρηση.

16. Add a reminder in a document:
Reminder: Εδώ ξεκινά μια υπενθύμιση.
Reminder: Εδώ ξεκινά μια υπενθύμιση.

17. Header for the theory part of a test:

THEORY

Header for the exercise part of a test:

EXERCISES

18. Set the title of a worksheet

Worksheet

or

Worksheet στην παράγραφο §A.2.3

19. Teacher/headmaster signatures:

Headmaster

Georg Cantor

Οι Εισηγητές

Αλφαβήτας Γαμαδέλτας

Εψιλονζήτας Ηταθήτας

20. Headers for tests:

Test

Test Α' τετραμήνου

Τεστ στο κεφάλαιο 1

21. Header for end year summative tests:

ΓΡΑΠΤΕΣ ΕΠΑΝΑΛΗΠΤΙΚΕΣ EXAMS PERIOD ΜΑΪΟΥ – ΙΟΥΝΙΟΥ

22. Logo of the exams

    or if we set `\authorities` and `schl@authorities`:

23. School logo

    ΓΥΜΝΑΣΙΟ ΠΑΤΡΩΝ
    Β' Γυμνασίου
    Μαθηματικά
    Ήρων από την Αλεξάνδρεια

24. True-false type questions with the environment `truefalse`

1. kjahs naoisjh nmaksjnd njaksjn dnamksdoh n ash nda ias doasj d jjsn ndijewh nasusfd has hujh djnjdi haiusd i T F
2. kjahs naoisjh nmaksjnd njaksjn dnamksdoh n ash nda ias doasj d jjsn ndijewh nasusfd has hujh djnjdi haiusd i kjahs naoisjh nmaksjnd njaksjn dnamksdoh n ash nda ias doasj d jjsn ndijewh nasusfd has hujh djnjdi haiusd i kjahs naoisjh nmaksjnd njaksjn dnamksdoh n ash nda T F
3. ias doasj d jjsn ndijewh nasusfd has hujh djnjdi haiusd i T F
4. ias doasj d jjsn ndijewh nasusfd has hujh djnjdi haiusd i kjahs naoisjh nmaksjnd njaksjn dnamksdoh n ash nda ias doasj d jjsn ndijewh nasusfd has hujh djnjdi haiusd i kjahs naoisjh nmaksjnd njaksjn dnamksdoh n ash nda T F

25. `truefalse*` is a variant of `truefalse`.

	T	F
1. kjahs naoisjh nmaksjnd njaksjn dnamksdoh n ash nda ias doasj d jjsn ndijewh nasusfd has hujh djnjdi haiusd i	☐	☐
2. kjahs naoisjh nmaksjnd njaksjn dnamksdoh n ash nda ias doasj d jjsn ndijewh nasusfd has hujh djnjdi haiusd i kjahs naoisjh nmaksjnd njaksjn dnamksdoh n ash nda ias doasj d jjsn ndijewh nasusfd has hujh djnjdi haiusd i kjahs naoisjh nmaksjnd njaksjn dnamksdoh n ash nda	☐	☐
3. ias doasj d jjsn ndijewh nasusfd has hujh djnjdi haiusd i	☐	☐
4. ias doasj d jjsn ndijewh nasusfd has hujh djnjdi haiusd i kjahs naoisjh nmaksjnd njaksjn dnamksdoh n ash nda ias doasj d jjsn ndijewh nasusfd has hujh djnjdi haiusd i kjahs naoisjh nmaksjnd njaksjn dnamksdoh n ash nda	☐	☐

26. Matching questions:

	θάλασσα
	κατάστημα
παιδί	διάστημα
χταπόδι	διάβασμα
παιχνίδι	ψωμί
	σαλάμι