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Prologue

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This is a bash script. It is a collection of functions which are super duper.

```
Skript 1.0.1 — func.sh A collection of useful function.
#!/bin/sh
### Basic functions for the bash ###
### A adaptation of "echo" ########
11
socs_echo() {
 echo "[$1 $( date +"%T" )] $2"
                                                       13
 # Take the first argument, add a timestamp and then echo the actual in-
 # formation via the secons argument.
                                                       15
}
                                                       17
### A function for handling errors ###
                                                       19
usage() {
 echo "Usage: $1.sh $2" >&2
 # Display a massage with the name of the executes script ("$1") and a list 23
 # of possible options.
 [[ \# -eq 1 ]] && exit $1 || exit $EXIT_FAILURE
                                                       25
                                                       27
### Thorough display of ############
                                                       29
### date and time #################
```

```
full_date() {
  # Get local.
                                                                         33
  language=\$(locale \mid grep LANG \mid cut -d = -f2 \mid cut -d_- -f1)
  case $1 in # Look up the text for the current localisation.
                                                                         35
   de) # German language.
     # Example for a thorough german date: Freitag den 13. November 2015...37
     date +"%A den %d. %B %Y, %H:%M Uhr"
                                                                         39
      echo "Localisation not recognised."
  esac
}
                                                                         43
function sorting_date {
  date +"%Y.%m.%d_%H:%M_Uhr"
                                                                         45
#
                                                                         47
```



2.1 Paragraphs of Text

Lorem ipsum dolor sit amet, consectetuer adipiscing elit. Ut purus elit, vestibulum ut, placerat ac, adipiscing vitae, felis. Curabitur dictum gravida mauris. Nam arcu libero, nonummy eget, consectetuer id, vulputate a, magna. Donec vehicula augue eu neque. Pellentesque habitant morbi tristique senectus et netus et malesuada fames ac turpis egestas. Mauris ut leo. Cras viverra metus rhoncus sem. Nulla et lectus vestibulum urna fringilla ultrices. Phasellus eu tellus sit amet tortor gravida placerat. Integer sapien est, iaculis in, pretium quis, viverra ac, nunc. Praesent eget sem vel leo ultrices bibendum. Aenean faucibus. Morbi dolor nulla, malesuada eu, pulvinar at, mollis ac, nulla. Curabitur auctor semper nulla. Donec varius orci eget risus. Duis nibh mi, congue eu, accumsan eleifend, sagittis quis, diam. Duis eget orci sit amet orci dignissim rutrum.

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Nulla malesuada porttitor diam. Donec felis erat, congue non, volutpat at, tincidunt tristique, libero. Vivamus viverra fermentum felis. Donec nonummy pellentesque ante. Phasellus adipiscing semper elit. Proin fermentum massa ac quam. Sed diam turpis, molestie vitae, placerat a, molestie nec, leo. Maecenas lacinia. Nam ipsum ligula, eleifend at, accumsan nec, suscipit a, ipsum. Morbi blandit ligula feugiat magna. Nunc eleifend consequat lorem. Sed lacinia nulla vitae enim. Pellentesque tincidunt purus vel magna. Integer non enim. Praesent euismod nunc eu purus. Donec bibendum quam in tellus. Nullam cursus pulvinar lectus. Donec et mi. Nam vulputate metus eu enim. Vestibulum pellentesque felis eu massa.

Quisque ullamcorper placerat ipsum. Cras nibh. Morbi vel justo vitae lacus tincidunt ultrices. Lorem ipsum dolor sit amet, consectetuer adipiscing elit. In hac habitasse platea dictumst. Integer tempus convallis augue. Etiam facilisis. Nunc elementum fermentum wisi. Aenean placerat. Ut imperdiet, enim sed gravida sollicitudin, felis odio placerat quam, ac pulvinar elit purus eget enim.

Nunc vitae tortor. Proin tempus nibh sit amet nisl. Vivamus quis tortor vitae risus porta vehicula.

Fusce mauris. Vestibulum luctus nibh at lectus. Sed bibendum, nulla a faucibus semper, leo velit ultricies tellus, ac venenatis arcu wisi vel nisl. Vestibulum diam. Aliquam pellentesque, augue quis sagittis posuere, turpis lacus congue quam, in hendrerit risus eros eget felis. Maecenas eget erat in sapien mattis porttitor. Vestibulum porttitor. Nulla facilisi. Sed a turpis eu lacus commodo facilisis. Morbi fringilla, wisi in dignissim interdum, justo lectus sagittis dui, et vehicula libero dui cursus dui. Mauris tempor ligula sed lacus. Duis cursus enim ut augue. Cras ac magna. Cras nulla. Nulla egestas. Curabitur a leo. Quisque egestas wisi eget nunc. Nam feugiat lacus vel est. Curabitur consectetuer.

Suspendisse vel felis. Ut lorem lorem, interdum eu, tincidunt sit amet, laoreet vitae, arcu. Aenean faucibus pede eu ante. Praesent enim elit, rutrum at, molestie non, nonummy vel, nisl. Ut lectus eros, malesuada sit amet, fermentum eu, sodales cursus, magna. Donec eu purus. Quisque vehicula, urna sed ultricies auctor, pede lorem egestas dui, et convallis elit erat sed nulla. Donec luctus. Curabitur et nunc. Aliquam dolor odio, commodo pretium, ultricies non, pharetra in, velit. Integer arcu est, nonummy in, fermentum faucibus, egestas vel, odio.

Sed commodo posuere pede. Mauris ut est. Ut quis purus. Sed ac odio. Sed vehicula hendrerit sem. Duis non odio. Morbi ut dui. Sed accumsan risus eget odio. In hac habitasse platea dictumst. Pellentesque non elit. Fusce sed justo eu urna porta tincidunt. Mauris felis odio, sollicitudin sed, volutpat a, ornare ac, erat. Morbi quis dolor. Donec pellentesque, erat ac sagittis semper, nunc dui lobortis purus, quis congue purus metus ultricies tellus. Proin et quam. Class aptent taciti sociosqu ad litora torquent per conubia nostra, per inceptos hymenaeos. Praesent sapien turpis, fermentum vel, eleifend faucibus, vehicula eu, lacus.

2.2 Citation

This statement requires citation [book_key]; this one is more specific [article_key].

2.3 Lists

Lists are useful to present information in a concise and/or ordered way¹.

2.3.1 Numbered List

- 1. The first item
- 2. The second item
- 3. The third item

2.3.2 Bullet Points

- The first item
- The second item
- The third item

2.3.3 Descriptions and Definitions

Name Description Word Definition Comment Elaboration

¹Footnote example...



3.1 Theorems

This is an example of theorems.

3.1.1 Several equations

This is a theorem consisting of several equations.

Skript 3.1.1 — Name of the theorem In $E = \mathbb{R}^n$ all norms are equivalent. It has the properties:

$$|||\mathbf{x}|| - ||\mathbf{y}||| \le ||\mathbf{x} - \mathbf{y}|| \tag{3.1}$$

$$\left|\left|\sum_{i=1}^{n} \mathbf{x}_{i}\right|\right| \leq \sum_{i=1}^{n} \left|\left|\mathbf{x}_{i}\right|\right| \quad \text{where } n \text{ is a finite integer}$$
(3.2)

3.1.2 Single Line

This is a theorem consisting of just one line.

Skript 3.1.2 A set $\mathcal{D}(G)$ in dense in $L^2(G)$, $|\cdot|_0$.

3.2 Definitions

This is an example of a definition. A definition could be mathematical or it could define a concept.

Definition 3.2.1 — **Definition name**. Given a vector space E, a norm on E is an application, denoted $||\cdot||$, E in $\mathbb{R}^+ = [0, +\infty[$ such that:

$$||\mathbf{x}|| = 0 \Rightarrow \mathbf{x} = \mathbf{0} \tag{3.3}$$

$$||\lambda \mathbf{x}|| = |\lambda| \cdot ||\mathbf{x}|| \tag{3.4}$$

$$||x + y|| \le ||x|| + ||y|| \tag{3.5}$$

3.3 Notations

Notation 3.1. Given an open subset G of \mathbb{R}^n , the set of functions φ are:

- 1. Bounded support G;
- 2. Infinitely differentiable;

a vector space is denoted by $\mathcal{D}(G)$.

3.4 Remarks

This is an example of a remark.



The concepts presented here are now in conventional employment in mathematics. Vector spaces are taken over the field $\mathbb{K}=\mathbb{R}$, however, established properties are easily extended to $\mathbb{K}=\mathbb{C}$.

3.5 Corollaries

This is an example of a corollary.

Corollary 3.5.1 — Corollary name. The concepts presented here are now in conventional employment in mathematics. Vector spaces are taken over the field $\mathbb{K} = \mathbb{R}$, however, established properties are easily extended to $\mathbb{K} = \mathbb{C}$.

3.6 Propositions

This is an example of propositions.

3.6.1 Several equations

Proposition 3.6.1 — Proposition name. It has the properties:

$$|||\mathbf{x}|| - ||\mathbf{y}||| \le ||\mathbf{x} - \mathbf{y}|| \tag{3.6}$$

$$\left|\left|\sum_{i=1}^{n} \mathbf{x}_{i}\right|\right| \leq \sum_{i=1}^{n} \left|\left|\mathbf{x}_{i}\right|\right| \quad \text{where } n \text{ is a finite integer}$$
(3.7)

3.6.2 Single Line

Proposition 3.6.2 Let $f, g \in L^2(G)$; if $\forall \varphi \in \mathcal{D}(G), (f, \varphi)_0 = (g, \varphi)_0$ then f = g.

3.7 Examples

This is an example of examples.

3.7.1 Equation and Text

Example 3.1 Let $G = \{x \in \mathbb{R}^2 : |x| < 3\}$ and denoted by: $x^0 = (1,1)$; consider the function:

$$f(x) = \begin{cases} e^{|x|} & \text{si } |x - x^0| \le 1/2\\ 0 & \text{si } |x - x^0| > 1/2 \end{cases}$$
 (3.8)

The function f has bounded support, we can take $A = \{x \in \mathbb{R}^2 : |x - x^0| \le 1/2 + \varepsilon\}$ for all $\varepsilon \in]0; 5/2 - \sqrt{2}[$.

3.8 Exercises

3.7.2 Paragraph of Text

■ Example 3.2 — Example name. Nam dui ligula, fringilla a, euismod sodales, sollicitudin vel, wisi. Morbi auctor lorem non justo. Nam lacus libero, pretium at, lobortis vitae, ultricies et, tellus. Donec aliquet, tortor sed accumsan bibendum, erat ligula aliquet magna, vitae ornare odio metus a mi. Morbi ac orci et nisl hendrerit mollis. Suspendisse ut massa. Cras nec ante. Pellentesque a nulla. Cum sociis natoque penatibus et magnis dis parturient montes, nascetur ridiculus mus. Aliquam tincidunt urna. Nulla ullamcorper vestibulum turpis. Pellentesque cursus luctus mauris.

3.8 Exercises

This is an example of an exercise.

Exercise 3.1 This is a good place to ask a question to test learning progress or further cement ideas into students' minds.

3.9 Problems

Problem 3.1 What is the average airspeed velocity of an unladen swallow?

3.10 Vocabulary

Define a word to improve a students' vocabulary. **Vocabulary 3.1 — Word.** Definition of word.

Part Two

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4.1 Table

| Treatments | Response 1 | Response 2 |
|-------------|------------|------------|
| Treatment 1 | 0.0003262 | 0.562 |
| Treatment 2 | 0.0015681 | 0.910 |
| Treatment 3 | 0.0009271 | 0.296 |

Table 4.1: Table caption

4.2 Figure

Figure 4.1: Figure caption



Books Articles



| | Numbered List |
|---------------------------------|--|
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| D | |
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| Examples | Several Equations |
| Exercises | |
| | R |
| F | Remarks |
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| | T |
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