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subject: On the Use of MVGL Report Template

This document represents the output from the file "example.tex" once compiled using your favorite LaTeXcompiler. This file should serve as a good example of the basic structure of a ".tex" file as well as many of the most basic commands needed for typesetting documents involving mathematical symbols and expressions. For more of a description on how each command works, please consult the links found on our course web-page.

Outline The remainder of this article is organized as follows. Section 1.3 gives account of previous work. Our new and exciting results are described in Section 1.5. Finally, Section 4 gives the conclusions.

1 Introduction

We use in science. In this report we address the use of dry erase markers specifically to the science and engineering performed at the MVGL. Let us begin with a description of a couple of basic dry erase marker drawings. We use the circle and the square to make our point.

1.1 Binomial Theorem

For any nonnegative integer n, we have

$$(1+x)^n = \sum_{i=0}^{n} \binom{n}{i} x^i$$

1.2 Taylor Series

The Taylor series expansion for the function e^x is given by

$$e^x = 1 + x + \frac{x^2}{2} + \frac{x^3}{6} + \cdots = \sum_{n \geq 0} \frac{x^n}{n!} \tag{1}$$

1.3 Sets

For any sets A, B and C, we have

$$(A \cup B) - (C - A) = A \cup (B - C)$$

$$
\begin{aligned}
(A \cup B) - (C - A) &= (A \cup B) \cap (C - A)^c \\
&= (A \cup B) \cap (C \cap A^c)^c \\
&= (A \cup B) \cap (C^c \cup A) \\
&= A \cup (B \cap C^c) \\
&= A \cup (B - C)
\end{aligned}
$$

Small Circles

We also need an example of a sub-subsection to make sure titles and table of content entries work for those.

And while we are at it, we might as well check paragraph spacing. Although, we will do that again in Section 3.

1. **First Point (Bold Face)**

2. *Second Point (Italic)*

3. Third Point (Large Font)

    (a) First Sub-point (Small Font)

    (b) Second Sub-point (Tiny Font)

    (c) Third Sub-point (Huge Font)

- Bullet Point (Sans Serif)

- Circle Point (Small Caps)

1.4 The Square

Figure 1 illustrates another famous shape. We will show some of its uses in later chapters, but we wanted to introduce it here because this is a good place for another figure.
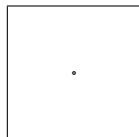

Figure 1. A square is another of the basic shapes. It is not quite as powerful as the circle. It has some similarities (note that the four corners all have the same distance to the center), and has many fine uses in everyday dry erase marker drawing.

1.5 The Dot

We also need a figure with a short caption. In order to do this, we introduce the dot. Figure 2 shows the shape of a dot.
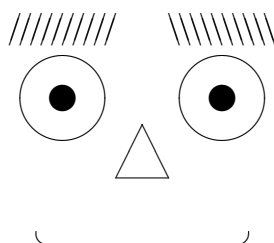
○

Figure 2. A simple dot

1.6 Tables and Such

In order to test our class file, we also need to have some tables. One should be enough for our purposes, so here it is: Table 1. On second thought, we need another one to test the list of tables with multiple entries.

2 A Picture

/////////// \\\\\\\\\\\

● ●

△

‿

3 A Long Section

We need a long chapter to test full-page formatting. Therefore, we switch to the ancient language of Latin.

Actually there is one more way, used above; for example, THIS WAY. The way that you get in and out of environment varies depending on which kind of environment you want; for example, you use `\underline` "outside", but `\it` "inside"; notice <u>this</u> versus *this*.

The real power of LaTeX (for us) is in the math environment. You push and pop out of the math environment by typing `$`. For example, $2x^3 - 1 = 5$ is typed between dollar signs as `$2x^3 - 1 = 5$`. Perhaps a more interesting example is $\sum_{k=1}^{N} f(t_k)\Delta t$.

You can get a fancier, display-style math environment by enclosing your equation with double dollar signs. This will center your equation, and display sub- and super-scripts in a more

Table 1. This superb table lists a few of the more important shapes and some of their properties. Be aware that this condensed list can by no means describe all the properties or shapes drawable by dry erase markers.

Name	Number of corners	Importance	Shape
circle	0	high	○
square	4	medium	◇
triangle	3	low	△

readable fashion:

$$\sum_{k=1}^{N} f(t_k)\Delta t$$

If you don't want your equation to be centered, but you want the nice indicies and all that, you can use `\displaystyle` and get your formula "in-line"; using our example this is $\sum_{k=1}^{N} f(t_k)\Delta t$. Of course this can screw up your line spacing a little bit.

4   Conclusions

Of course, no report would be complete without some conclusions. This section is where they would go, if we had some.

Table 2.   Numbers of Computers on Earth Sciences Network, By Type.

Macintosh	175
DOS/Windows PC	60
Unix Workstation or server	110

References

[1] N. Dhananjaya, B. Yegnanarayana, and V. G. Suryakanth. Acoustic-phonetic information from excitation source for refining manner hypotheses of a phone recognizer. In *Acoustics, Speech and Signal Processing (ICASSP), 2011 IEEE International Conference on*, pages 5252–5255, 2011.

[2] E. Erzin. Improving throat microphone speech recognition by joint analysis of throat and acoustic microphone recordings. *Audio, Speech, and Language Processing, IEEE Transactions on*, 17(7):1316–1324, 2009.

[3] Szu-Chen Stan Jou, Tanja Schultz, and Alex Waibel. Adaptation for soft whisper recognition using a throat microphone. In *INTERSPEECH*, 2004.

[4] Kazuhiro Kondo, Tomoe Fujita, and Kiyoshi Nakagawa. On Equalization of Bone Conducted Speech for Improved Speech Quality. In *IEEE International Symposium on Signal Processing and Information Technology*, pages 426–431, August 2006.

[5] T. Toda, K. Nakamura, H. Sekimoto, and K. Shikano. Voice conversion for various types of body transmitted speech. In *Acoustics, Speech and Signal Processing, 2009. ICASSP 2009. IEEE International Conference on*, pages 3601–3604, 2009.

A Historical Perspective

Here is a very simple table showing data lined up in columns. Notice that I include the table in a "center" environment to display it properly. The title is created simply as another paragraph in the center environment, rather than as part of the table itself.

A.1 The Past a Long Time Ago

Simple equations, like x^y or $x_n = \sqrt{a+b}$ can be typeset right in the text line by enclosing them in a pair of single dollar sign symbols. Don't forget that if you want a real dollar sign in your text, like $2000, you have to use the \$ command.

A more complicated equation should be typeset in *displayed math* mode, like this:

$$z \left(1 \;+\; \sqrt{\omega_{i+1} + \zeta - \frac{x+1}{\Theta+1} y + 1} \right) \;\; = \;\; 1$$

The "equation" environment displays your equations, and automatically numbers them consecutively within your document, like this:

$$\left[\mathbf{X} + \mathrm{a} \;\geq\; \underline{\hat{a}} \sum_i^N \lim_{x \to k} \delta C \right] \tag{2}$$

A.2 The Past More Recently

Now we have to be a little bit more careful, since records exist from that time, and some people still alive actually lived back then.

B Some Other Appendix

1. The "enumerate" environment numbers the list elements, like this. Items in a list can contain multiple paragraphs. These paragraphs are appropriately spaced and indented according to their position in the list.

   - The "itemize" environment sets off list items with "bullets", like this. Finally, the "description" environment lets you put your own

     X label on each item, like this "X".

     If the label is long, the first line of the item text will be spaced over to the right as needed.

   - Of course, lists can be nested, each type up to at least four levels. One type of list can be nested within another type.

     – Nested lists of the same type will change style of numbering or "bullets" as needed.

2. Don't forget to close off all list environments with the appropriate \end{...} command. Indenting \begin{...}, \item, and \end{...} commands in the input document according to their nesting level can help clarify the structure.