ISGS LaTeXBeginner Workshop 2016
LaTeX Exercise Sheet #2

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1 Booktabs with Multicolumn & Multirow

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2 Math

2.1 Alignment

$$a_1 x + a_2 x^2 = 0 \tag{1}$$
$$b_1 x + b_2 x^2 + b_3 x^3 = 0 \tag{2}$$

2.2 Dot-less Vectors

$$\vec{k} = \vec{\imath} \times \vec{\jmath}$$

2.3 Golden Ratio

Two quantities a and b are said to be in the *golden ratio* φ if

$$\frac{a}{b} = \frac{a+b}{a} = \varphi \tag{3}$$

By the way: $\varphi = 1 + \frac{1}{\varphi}$.

2.4 1+1=2

Often you see complicated equations like this:

$$1 + 1 = 2 \tag{4}$$

This complicated formula can be significantly simplified. As you know,

$$1 = \ln e \tag{5}$$

$$1 = \sin^2 \alpha + \cos^2 \alpha \tag{6}$$

and

$$2 = \sum_{n=0}^{\infty} \frac{1}{2^n} \tag{7}$$

Inserting equations (5) – (7) into (4) yields

$$\ln e + (\sin^2 \alpha + \cos^2 \alpha) = \sum_{n=0}^{\infty} \frac{1}{2^n} \tag{8}$$

Furthermore,

$$1 = \cosh \varphi \cdot \sqrt{1 - \tanh^2 \varphi} \tag{9}$$

and

$$e = \lim_{c \to \infty} \left[1 + \frac{1}{c}\right]^c \tag{10}$$

With this knowledge we finally can simplify equation (4) to

$$\ln \left(\lim_{c \to \infty} \left[1 + \frac{1}{c}\right]^c \right) + (\sin^2 \alpha + \cos^2 \alpha) = \sum_{n=0}^{\infty} \frac{\cosh \varphi \cdot \sqrt{1 - \tanh^2 \varphi}}{2^n} \tag{11}$$

3 Theorems & Definitions

Definition 1. *This is a user definition definition.*

Lemma 1. *This is a lemma. Have a look at the number of Definition 1 and this lemma.*