

## Math 370

### Homework 2

due Tuesday February 13. at class time.



#### Instructions

Your second assignment gives you practice with making lists and with creating tables, matrices and functions in Latex.

1. Start with the Title:

```
\title{Homework 2}
\author{Your Name}
\maketitle
```

2. Each problem should start with “Problem #.” and then there comes the solution. One can do it as “{\bf Problem 5.} ...” or as “\subsection{Problem 5.}”....
3. The submitted homework should contain both the printout of the output and of the code.

**A. Lists: enumerate and itemize.** In order to produce the list with numbered items such as

1. Snow.
2. Skis.
3. Sky.

one uses command *enumerate* :

```
\begin{enumerate} \item Snow. \item Skis. \item Sky. \end{enumerate}
```

For a list without numbering

- Snow.
- Skis.
- Sky.

one uses the *itemize* command

```
\begin{itemize} \item Snow. \item Skis. \item Sky. \end{itemize}
```

*Remark.* Lists are part of the Text mode. Any particular items may of course use the Math mode.

**B. Tables:** Make the following 4x4 table; pay attention to the adjustments (positions) of the columns.

1	2	3	4
aa	bb	cc	dd
aaa	bbb	ccc	ddd
1	23	m	456

This table is produced by

```

\begin{tabular}
{|l r | c r| }
\hline
1 & 2 & 3 & 4 \\
aa & bb & cc & dd \\
\hline
aaa & bbb & ccc & ddd \\
1 & 23 & m & 456 \\
\end{tabular}

```

Here, The second line `{|l r | c r| }` describes the columns of the table. Here“|” means a vertical line, while *l*, *r*, *c* mean that the column is adjusted to the left, right or center. Also, `\hline` means a horizontal line.

Notice that each line of a *table* has to end with a double backslash sign `\\` – it literally means “here the line ends”.

**C. Matrices:** A matrix  $\begin{pmatrix} 1 & 3 & 5 & 7 \\ 3 & -3 & 0 & 4 \\ 2 & 0 & -2 & 0 \end{pmatrix}$  is produced by

```

$$
\left(
\begin{array}
{cccc}
1 & 3 & 5 & 7 \\
3 & -3 & 0 & 4 \\
2 & 0 & -2 & 0
\end{array}
\right)
$$

```

The double dollar signs are used to “display” the matrix. i.e, to center it on the page. The commands “`\left(`” and “`\right)`” produce the big parentheses.

Again, each line of a *matrix*(here called *array*), has to end with a double backslash sign `\\`.



**Problem 1.** (a) Produce a numbered list of 3 top places that you would want to visit.

(a) Produce a list of 3 best food items in the Blue Wall (or some other cafeteria). The items should not be numbered.

1	2	3	4
	3	5	7
		8	12
			20

**Problem 2.** Produce the table

**Problem 3.** Produce the matrix

$$\begin{bmatrix} a & b & c \\ A & B & C \\ \alpha & \beta & \gamma \end{bmatrix}$$

*Remark.* The tables are in the Text mode, matrices are in the Math mode.