Exercises (October 30, 2017):

1. Exercise: try typesetting this
   It does not work with beamer
   
   > The first entry here
   > Then the second
   > etc
   
   • The first entry here
   • Then the second
   • etc

   *Hint:* Use `\textgreater` for “>” and `$\bullet$” for “•”.

2. Make a triple nested list.

3. How do you get this default:
   
   > First level
   † Second level
   ‡ Third level

   Check that it works by typesetting the triple nested list of the previous exercise.

   *Hint:* Symbols used: `\textgreater`, `$\star$`, `$\bullet$`.

4. Typeset this:
   
   **First** The first entry here
   **Second** Then the second
   **Last** Then the last

   with the descriptors “First” in red color, “Second” in blue and “Last” in black.
   
   *Hint:* `\usepackage{color}`
Solutions

Exercise 1: \renewcommand{\labelitemi}{\textgreater}

\begin{itemize}
\item The first entry here
\item Then the second
\item etc
\end{itemize}

\renewcommand{\labelitemi}{$\bullet$}

\begin{itemize}
\item The first entry here
\item Then the second
\item etc
\end{itemize}

Exercise 2: Here is an example of a triple nested list:

\begin{itemize}
\item The first entry here
\begin{itemize}
\item The first sub-entry here
\item Then the second sub-entry
\begin{itemize}
\item The first sub-sub-entry here
\item Then the second sub-sub-entry
\end{itemize}
\item etc
\end{itemize}
\item Return to original list, etc
\end{itemize}

Exercise 3: \renewcommand{\labelitemi}{\textgreater} \renewcommand{\labelitemii}{$\star$} \renewcommand{\labelitemiii}{$\bullet$}

Exercise 4: Per the hint place \usepackage{color} in the preamble. Then

\begin{description}
\item[\color{red}First] The first entry here
\item[\color{blue}Second] Then the second
\item[\color{black}Last] Then the last
\end{description}
Exercises (February 14, 2018):

1. Typeset
   \[ \begin{align*}
   a &= b \\
   c &= d \\
   e &= f \\
   g &= b \\
   h &= d \\
   k &= f
   \end{align*} \]

2. Typeset
   \[ a^2 = b^2 + c^2 \]

3. Typeset two of these: \( \varphi, \sigma, \mathcal{O}, \Xi, \vartheta \)

4. Typeset
   \[ F = G \frac{m_1 m_2}{r^2} \]

5. Typeset
   \[ n_{\pm}(E, T) = \frac{1}{e^{\frac{E}{k_B T}} \pm 1} = \frac{1}{e^{\frac{\hbar \omega}{k_B T}} \pm 1} \]
   \text{Note: This uses the greek letter \( \omega \) and the symbol \( \hbar \).}

6. Typeset
   \[ F_{\mu\nu} = [D_{\mu}, D_{\nu}] = \partial_{\mu} A_{\nu} - \partial_{\nu} A_{\mu} = \partial_{[\mu} A_{\nu]} \]
   \text{Note: This uses the greek letters \( \mu \) and \( \nu \), and the symbol \( \partial \).}

7. Typeset these (the first is inline, the next two are separate displayed equations):
   "Taylor expansion \( e^x = \sum_{n=0}^{\infty} \frac{1}{n!} x^n \)."
   \[ \int_0^1 \frac{df}{dx} \, dx = f(1) - f(0) \]
   \[ e^{\zeta(s)} = \prod_{n=1}^{\infty} e^{1/n^s} \]
   (This uses the greek letter zeta).
Solutions

Exercise 1: \begin{align*}
a &= b & c &= d & e &= f \\
g &= b & h &= d & k &= f
\end{align*}

Note: the star in align* is used in order to omit equation numbering.

Exercise 2: \item Typeset
\[
\begin{align*}
a^2 &= b^2 + c^2
\end{align*}
\]

Exercise 3: Use package wasysym for \texttt{\female, \male, \taurus, amssymb} for \$\boxminus\$, and tipa for \texttt{\textschwa}

Exercise 4: 
\[
F = G_N \frac{m_1 m_2}{r^2}
\]

Exercise 5: 
\[
n_{\pm}(E,T) = \frac{e^{-\frac{E}{k_BT}}}{e^{\frac{\hbar \omega}{k_BT}} + 1}
\]

Exercise 6: 
\[
F_{\mu \nu} = [D_\mu , D_\nu]
\]

Exercise 7: 
``Taylor expansion \$e^x = \sum_{n=0}^{\infty} \frac{n!}{n^n} x^n\$.``
\[
\int_{0}^{1} \frac{df}{dx} dx = f(1) - f(0)
\]
\[
e^{\zeta(s)} = \prod_{n=1}^{\infty} e^{1/n^s}
\]

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