1. Exercise: Typeset this by changing the default “bullet” symbol twice.

   > 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: \texttt{\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 tripple nested list:

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

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

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

\begin{description}
  \item[\textcolor{red}{First}] The first entry here
  \item[\textcolor{blue}{Second}] Then the second
  \item[\textcolor{black}{Last}] Then the last
\end{description}
Exercises (November 18, 2020):

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: \( \varphi, \sigma, \odot, \boxminus, \forall \)

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

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

6. Typeset
   
   \[ F_{\mu\nu} = [D_\mu, D_\nu] = \partial_\mu A_\nu - \partial_\nu A_\mu = \partial_{[\mu} A_{\nu]} \]
   
   *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 \texttt{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 \texttt{wasysym} for \texttt{female}, \texttt{male}, \texttt{taurus}, \texttt{amssymb} for \texttt{\boxminus}, and \texttt{tipa} for \texttt{textschwa}

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

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

Exercise 6:
\[
F_{\mu\nu} = \left[ D_\mu , D_\nu \right] = \partial_\mu A_\nu - \partial_\nu A_\mu = \partial_{[\mu} A_{\nu]}{}
\]

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