Question 1 How can I create matrices like

$$\begin{bmatrix} 1 & 2 & 3 \\ 4 & B \end{bmatrix}$$
?

Answer: This can be easily done since arrays can be nested!

It is a little more difficult if *B* has to be huge because then you have to manually tune its position vertically (arrays do have the optional argument b or t but here we need finer tuning):

The two first columns (of the first array) can come closer if spacing does not look right for you by removing the extra space as follows:

$\left[egin{array}{ccc} 1 & 2 & 3 \ 4 & B \ 5 & B \end{array} ight]$	<pre>\$\$ \left[\begin{array}{c@{}c} 1 & \begin{array}{cc} 2 & 3\end{array}\\ \begin{array}{c} 4 \\ 5\end{array} &</pre>
	\end{array}\right] \$\$

Of course if you want some other spacing then you may insert a \hspace command as follows:

By nesting arrays we can create very complicated matrices.