1. `xyplot(height ~ weight | gender)` sometimes produces the message
   `Error: could not find function "xyplot"`
   Why?

2. Write code to:
   (a) create the matrix $M$ using `cbind`
   
   $$
   \begin{pmatrix}
   1 & 6 & 4 \\
   3 & 4 & 9 \\
   6 & 4 & 2
   \end{pmatrix}
   $$
   (b) create a list $L$ with three components
   
   i. The matrix $M$
   
   ii. The matrix $M$ with 10 added to each entry
   
   iii. The inverse of the matrix $M$
   (c) extract the second component of the list as a matrix.
   (d) calculate the sum of the entries in each matrix using `sapply`

3. Suppose $D$ is a data frame with $m$ columns of numeric data, some of which contain missing values. It is desired to impute the missing values. Firstly by the mean of the corresponding column and then using a more general prediction.
   (a) Create a matrix of logical values named `isMissing`, indicating whether or not the corresponding entry in $D$ is missing.
   (b) Calculate a vector of column means for the data frame using `sapply`.
   (c) Create a numeric matrix, called `Means`, the same dimensions as $D$, containing the relevant column mean for each entry, i.e $Means[i,j] = \sum_j D[i,j]$ (Use the functions `matrix`, and `rep`, the latter with the `each` option.)
   (d) Assign the entries in `Means` corresponding to true values in `isMissing` to the missing values in $D$.

4. Extend Q3 to a more sophisticated method of imputation: suppose `myPredictor` is a function with three arguments: a data frame, a row number and a column number, which returns a predicted value for the entry in that row and column based on the remaining data. (An example would be a predicted value from a linear regression of each column in turn on the others.)

   Write a function which uses the ideas of the answer to Q3 but constructs the imputations by calls to `myPredictor`. For the purposes of this question, nested `for` loops are acceptable, although more elegant methods are possible. Your function should have a single argument, a data frame, with no default value, and return the same data frame after replacing any missing values by the imputation.