1 Different ways to create vectors

Type the following expressions in the MATLAB Command Window to see what kind of vectors they create. Write the resulting vectors (and answer the questions) on the blanks.

```matlab
ea = zeros(1,4)  %________________
b = zeros(4,1)  %________________ What do the arguments specify?________________________
c = ones(1,3)  %________________
d = 10:2:17  %________________
f = 10:-1:17  %________________
g = [10 20 40]  %________________ What does the space separator do?_____________________
h = [10,20,40]  %________________ What does the comma separator do?______________________
k = [10;20;40]  %________________ What does the semi-colon separator do?________________
m = [a g]  %________________
n = [b; k]  %________________
p = [a k]  %ERROR--mismatched dimensions! (Attempt to concatenate a column to a row)
q = b'  %________________ This operation is called "transpose"
r = [a b']  %________________
```

2 Evaluate a polynomial

Write a function `evalPoly` to evaluate an \( n \)th order polynomial of \( x \):

\[
a_0 + a_1x + a_2x^2 + \cdots + a_nx^n
\]

The two input parameters are `coef` and `x`. `coef` is a vector or real values of length \( n + 1 \) and contains the coefficients of the polynomial. `coef(1)` corresponds to \( a_0 \), the coefficient for the term \( x^0 \). Input parameter `x` is a real value. Function `evalPoly` returns the value of the polynomial evaluated at `x`.

3 Minimum value in a vector

Implement the following function:

```matlab
function [val, k] = findMin(v)
    % Find the minimum value in vector v. v is a vector of real numbers. length(v)>0.
    % val is the minimum value in v.
    % k is the first position at which the minimum value appears.
```
4 Biggest rectangle

Implement the following function:

```matlab
function [a,b,c,d] = biggestRectangle(x,y,v,w)
% Find the rectangle with the largest area.
% x,y,v,w are vectors of the same length containing real numbers. length(x)>0.
% The points (x(1),y(1)) and (v(1),w(1)) are the opposing corners of rectangle 1,
% the points (x(2),y(2)) and (v(2),w(2)) are the opposing corners of rectangle 2,...
% the points (x(k),y(k)) and (v(k),w(k)) are the opposing corners of rectangle k.
% (a,b) and (c,d) are the opposing corners of the biggest rectangle in the set of
% rectangles defined by x,y,v,w.
```