Numpy exercises

1. Create a null vector of size 10 with the fifth value of 1
2. Create a vector with values ranging from 10 to 49
3. Reverse a vector (first element becomes last)
4. Create a 3x3 matrix with values ranging from 0 to 8
5. Create a 3x3 identity matrix
6. Create a 3x3 array with random values *(hint:np.random.random)*
7. Create a 2d array with 1 on the border and 0 inside *(hint:define a 2D np.ones, then modify inside values)*
8. Multiply a 5x3 matrix by a 3x2 matrix (real matrix product)
9. Given a 1D array, negate all the elements that are higher than 3, all at once
10. Given a 1D array, negate all elements which are between 3 and 8, in place
11. Create a 5x5 matrix with row values ranging from 0 to 4 *(use broadcasting: np.zeros + np.arange)*
12. Create a vector of size 10 with values ranging from 0 to 1, both excluded *(hint:np.linspace(..., endpoint=True))*
13. Create random vector of size 10 and replace the maximum value by 0 *(hint:np.argmax)*
14. Subtract the mean of each row of a matrix *(hint: use np.mean(..., axis = 1, keepdims=True))*
15. How to sort a 2d array array by the nth column? (*hint: get the nth column with slicing and then use np.argsort)*
16. Find the nearest value from a given value in an array *(hint: use these three commands → np.abs(), np.argmin(), np.flatten())*

Source and solution:
http://www.labri.fr/perso/nrougier/teaching/numpy.100/