
For each Question 1 you should write the requested function and a driver script to test it.

- 1) (5 pts) Write a function that takes a vector x of length n as input (note, you don't have to input n to your function, you can use the `length` function within the body to get the length of x). The function should locate the positions of the maximum and minimum values of x . It should then swap the element in the minimum position with the element in x_1 and swap the element in the maximum position with the element in x_n . For example, if

```
x = [5 7 -3 4 2 -1 6]
```

then the function output should be

```
x = [-3 6 5 4 2 -1 7]
```

- 2) (2 pts) Write two MATLAB statements that will sum all of the values of a vector x that are greater than 10.
- 3) (2 pts) Suppose A is the matrix

$$A = \begin{pmatrix} 1 & 2 & 3 & 4 \\ 5 & 6 & 7 & 8 \\ 9 & 10 & 11 & 12 \\ 13 & 14 & 15 & 16 \end{pmatrix}.$$

What is the output of

```
A(10)
```

Explain why you get this output.

- 4) (3 pts) In the interpolation assignments from before, we had to locate the two values of x in a table of values that bracket x^* . The critical part of the code looked like this:

```
for i = 1:length(x)
    if(xstar < x(i))
        pos = i;
        break
    end
end
```

Write two MATLAB statements (one of which will be a `find` statement) that will produce the same value of `pos`.