IALP 2011 – Octave TP2

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Exercise 1:

Define the following two vectors in Octave

$$a = \begin{pmatrix} 1 & 2 & 3 \end{pmatrix}, \quad b = \begin{pmatrix} 1 \\ 2 \\ 3 \end{pmatrix}$$

What will be the result of the operations

a*b	b*a	a.*b	b.*a
a*a	b*b	a.*a	b.*b

Check your answers.

Exercise 2:

What will be the result of each of the following instructions:

`a = [1:2:12]`	
`b = [2:2:12]`	
`c = [1,2,12]`	
`d = [1 2]*12`	

Exercise 3:

What will be the result of the following set of instructions:

`A = [1, 2, 3;`
`     0, 1, 2;`
`     1, 1, 1];`
`b = 2;`
`C = b+A`	

Exercise 4:

How to define an vector `t` of 101 elements from 0 to 2π?

How to calculate the values (construct a vector `v` of values) of sin(x) with x ranging from 0, 2π/100, 4π/100, ..., 2π?

Check the answer by typing
```
plot(t, v)
```

Exercise 5:

`cumsum` and `cumprod` give the cumulative sum and products of the elements of a vector. Use this somehow to calculate the first 10 factorial numbers *n*!

(Remember, *n*! = *n* x (*n*–1) x (*n*–2) x ... x 1; 1! = 1, 2! = 2, 3! = 6, 4! = 24, 5! = 120, etc.)