Exercise 1.

Let `a` be an array of length `deg+1`, containing doubles. Write the function `polyval` (see its signature below), that takes as input `a`, `deg`, and a double `x` and as output returns the value $\sum_{i=0}^{deg} a_i x^i$, where a_i corresponds to the array entry `a[i]`. The function `pow` is forbidden.

```
double polyval( double *a, int deg, double x )
```

Exercise 2.

Princess Leia enjoys programming in C. She successfully compiles the following program.

```
#include <stdlib.h>
#include <stdio.h>

void function( int *array, int n )
{
   int i, j, tmp, current, idx;

   for(i=0; i<n; i++){
      current = -1;
      idx = -1;

      for(j=i; j<n; j++){
         if(array[j] > current){
            current = array[j];
            idx = j;
         }
      }

      tmp = array[i];
      array[i] = array[idx];
      array[idx] = tmp;
      printf("iter:%d\tidx:%d\n", i, idx);
   }
}

int main( int argc, char *argv[] )
{
   int i, n = 6;

   int *input = (int *) malloc(sizeof(int) * n);
   for(i=0; i<n; i++) input[i] = (7*i+2)%5;

   function(input, n);

   printf("[");
   for(i=0; i<n; i++){ printf("%d  ", input[i]); }
   printf("]\n");

   free(input);
   return 0;
}
```

a) When she executes this program, what is it printed on her screen?

b) In general, what does the function `function` do?

c) If she changed the line
`for(i=0; i<n; i++)` (in the function `function`) with
`for(i=0; i<n-1; i++)`,
would the result of the line
`for(i=0; i<n; i++){ printf("%d  ", input[i]);`
change? Why?

d) If she changed the line
`for(j=i; j<n; j++)` (in the function `function`) with
`for(j=i+1; j<n; j++)`,
would the result of the line
`for(i=0; i<n; i++){ printf("%d  ", input[i]);`
change? Why?