1. What gets printed when the following program is run?

```
#include <stdio.h>
void main()
{
  int taulu[10] = {0}, *p1;
  double lukui[5] = {5, 4, 3, 2, 1};

  printf("%lf %lf %lf\n", lukui[2], lukui[3], lukui[4]);

  p1 = taulu + 1;
  *p1 = 2;
  p1++;
  *p1 = 3;
  printf("%d %d %d\n", *taulu, taulu[1], taulu[2]);
}
```

2. Write a program that asks the user a max. of 100 realnumbers, and places the numbers into an array. After that, the function should calculate the average of the numbers in the array and print it to the screen. Also, try to change your program so that it only uses pointers to access the array (i.e. no brackets [ ] or indices)!

3. Write functions that compute the dot and cross products of two three dimensional vectors $\vec{a}=(a_1,a_2,a_3)$ and $\vec{b}=(b_1,b_2,b_3)$. Test your functions in the main function using vectors $\vec{a}=(1,2,3)$ ja $\vec{b}=(1,1,1)$. The function prototypes could be

   double dotprod(double a[], double b[]);

   void crossprod(double a[], double b[], double cross[]);

   Dot product: $\vec{a}\cdot\vec{b}=a_1 b_1+a_2 b_2+a_3 b_3$ (real number)

   Cross product: $\vec{a}\times\vec{b}=(a_2 b_3-a_3 b_2,-a_1 b_3+a_3 b_1,a_1 b_2-a_2 b_1)$ (3D vector)

Extras:

4. Write a program that reads from the user integers between 0 and 100 until the user inputs a negative number. Then, the program should print the numbers given by the user in ascending order, and how many times each number was given.

5. Write a function that sorts an array of realnumbers into ascending order of magnitude. Write a main function that reads from the user a maximum of 1000 real numbers, places the numbers into an array, and then sorts the array using your function!