The purpose of this homework is to practice for midterm exam. Midterm exam includes problems similar to the following assignments.

1. Give a short description of the following concepts:
   (a) Procedural and nonprocedural programming
   (b) The structure theorem
   (c) Range and precision of real numbers
   (d) Operators: describe all their properties.

2. Use the BNF notation to define the syntax of
   (a) Integers divisible by 10.
   (b) Real numbers (standard and exponential notation).
   (c) Array specification and initialization in C. Describe only the cases with numeric constants (e.g. **`static int a[2][3]={{1,2,3},{4,5,6}};`**)

3. Write functions that perform the following operations:
   (a) Addition of polynomials
   (b) Multiplication of polynomials
   (c) Derivative(s) of polynomial
   (d) Integral of polynomial

   Write a main program that illustrates the work of your functions. Use a procedural language of your choice.

4. (a) Write a Prolog program **sum(List, MinPlusMax)** for computing the sum of the maximum and the minimum component of a list. An example of its use is:

```
?-  sum([3, 4, 1, 2], M).
M = 5
```

(b) Describe the concept of *findall* predicate in Prolog. Show a complete example of using *findall* to find the oldest grandchild of person P.

(c) Describe the concepts of *flexible* and *inflexible predicates* in Prolog. Show examples of flexible and inflexible predicates.

Your homework must be printed, stapled, and include a title page.