Practice Arena

Practice problems aimed to improve your coding skills.

- PRACTICE-02_SCAN-PRINT
- PRACTICE-03_TYPES
- LAB-PRAC-02_SCAN-PRINT
- LAB-PRAC-01
- PRACTICE-04_COND
- BONUS-PRAC-02
- LAB-PRAC-03_TYPES
  - FIFA Fever
  - Matrix Math
  - The Tale of Three Lines
  - Fiery FIFA Fever
  - The Final Rational
  - Quadratic Quandary
  - FIFA Fractions
  - Digit Dilemma
  - Recursive Recharge
  - Breaking the Lego Safe
  - The Final Rational Revisited
  - Developing an interest in interest
- PRACTICE-05_COND-LOOPS
- LAB-PRAC-04_COND
- LAB-PRAC-05_CONDLOOPS
- PRACTICE-07_LOOPS-ARR
- LAB-PRAC-06_LOOPS
- LAB-PRAC-07_LOOPS-ARR
- LABEXAM-PRAC-01_MIDSEM
- PRACTICE-09_PTR-MAT
- LAB-PRAC-08_ARR-STR
- PRACTICE-10_MAT-FUN
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- PRACTICE-11_FUN-PTR
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- LAB-PRAC-12_FUN-STRUC
- LABEXAM-PRAC-02_ENDSEM
- LAB-PRAC-13_STRUC-NUM
- LAB-PRAC-14_SORT-MISC

Developing an interest in interest

LAB-PRAC-03_TYPES

Developing an interest in interest [20 marks]

Problem Statement
Loans and interest are crucial to modern economy. The argument for interest is as follows: It is preferable to receive a given good now rather than in the future and therefore interest is compensation for the time the lender forgoes the benefit of spending the money. You are given the following quantities

1. principal amount P
2. annual rate of interest R (in %)
3. first duration of time in years T1
4. second duration of time in years T2
5. number of times interest is compounded per year N

All the above quantities will be provided to you as **integers**. You need to give the following outputs **on different lines**

1. total interest accrued if simple interest is applied for T1 years
2. if after T1 years of simple interest, we start applying compound interest for T2 years (compounded N times a year), then total compound interest accrued in those T2 years.
3. total interest accrued if we had just applied simple interest for T1 + T2 years
4. total interest accrued if we had just applied compound interest for T1 + T2 years (compounded N times a year)

Caution

1. Be careful about extra/missing lines and extra/missing spaces.
2. All outputs ask for interest amounts, not final amounts.
3. All the **outputs should be rounded to 3 places** beyond the decimal point.
4. Use double variables for all your computations. **Do not use float** as it may cause you loss of precision.

HINT: You may require the use of functions from the math.h library which has been included for you. The formula for calculating the **final amount** if interest is compounded N times a year for T years at R% rate with principal P is

$$P * (1 + R/(100 * N))^{N*T}$$

EXAMPLE:
INPUT
P = 1000
R = 10
T1 = 1
T2 = 1
N = 1

OUTPUT:
100.000
110.000
200.000
210.000

Grading Scheme:
Total marks: **[20 Points]**

There will be partial grading in this question. There will be 4 lines in your output. Each carries 25% weightage. Each visible test case is worth 2 points and each hidden test case is worth 4 points. There are 2 visible and 4 hidden test cases.

Please remember, however, that when you press Submit/Evaluate, you will get a green bar only if all parts of your answer are correct. Thus, if your answer is only partly correct, Prutor will say that you have not passed that test case completely, but when we do autograding afterwards, you will get partial marks.

🍴 Start Solving! (/editor/practice/6029)