

Computer Programming, Assignment 1

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1. Write a program which reads three integers and checks if they form pythagorean triplets. **Challenge Problem:** Read an integer N as input and output the first N pythagorean triplets. A Pythagorean triplet like $\langle 3, 4, 5 \rangle$ should be counted only once. Meaning we should not count again $\langle 4, 3, 5 \rangle$, $\langle 5, 4, 3 \rangle$ etc.
2. Write a program which reads an integer as input and prints the first ten rows of its multiplication table as output. For example if the input is 3, the output is as follows.

```
3 x 1 = 3
3 x 2 = 6
3 x 3 = 9
3 x 4 = 12
3 x 5 = 15
3 x 6 = 18
3 x 7 = 21
3 x 8 = 24
3 x 9 = 27
3 x 10 = 30
```

Use `goto` statement for looping. Read from Essential C book or any other reference about the `while` loop, and write a different version of the program using the `while` loop. **Challenge Problem:** Read the number of rows to be printed also as input.

3. Write a program which reads an integer N as input and outputs $\sum_{i=1}^N \sqrt{i}$ as output.
4. Write a program to check whether a given pair of integer inputs are coprimes.
5. Write a program to compute the dot product of two vectors.