1. **Calculation of number of plants in a farm**

A person 'X' has a farm which is rectangular in shape. 'X' wants to plant coconut trees in the farm and he has heard that every tree has to be separated by 2 feet. He needs to calculate the number of plants to be purchased. Write a program to calculate the number of plants when provided with the length and breadth of the farm (in feet). The program should display the number of rows and columns along with the total number of plants required for the farm. For example, if the length and breadth of the farm is 9 feet \* 4 feet then the farmer can plant trees in positions 0, 2, 4, 6, 8 along the length and 0,2,4 along the breadth therefore number of trees to be purchased is 5\*3 = 15.

**Input Format:**

The first input value read is the length of the farm (in feet).

The second input value read is the breadth of the farm(in feet).

**Output Format:**

Print number of rows

Print number of columns

Print number of plants required

1. **Interest rate calculator**

Raman, a finance consultant decides to create an application for the public who wants to decide on the type of investment they can make. He needs an application, which when given with the initial amount, no of years of investment ‘n’ and the expected amount after ‘n’ years, should tell the rate of interest based on which the customers will choose their investments. Assume that the application works with only simple interest calculation. Can you code for Raman? Use Rate of interest = ((expected amount-initial amount)/(initial amount \* no of years))\*100

**Input Format:**

The first input value read is the initial amount the customer has.

The second input value read is the no of years he want to invest.

The third input value is the expected amount after ‘n’ years.

**Output Format:**

Print rate of interest

**3.Bill generator**

XYZ is a working as a cashier in a Department store. He uses a bill book, in which he has to enter the item code, no of quantities purchased and then the price of each item. He then calculates the total amount to be given by the customer. Assume that a customer can purchase only three types of items at a time). Write a program to automate the process.

**Input Format:**

The first input value read is the quantity of first item.

The second input value read is the price per first item.

The third input value read the uantity of second item.

The fourth input value read is the price per second item.

The fifth input value read the quantity of third item.

The sixth input value read is the price per

third item.

**Output Format:**

Total amount to be paid by the customer

1. Thirsty Crow

Consider the thirsty crow story where a thirsty crow identifies a jug with little water. It puts pebbles into the water to raise the level of water and drinks it. Assume that the initial reading of the jug is 'm1' ml and the crow can drink water if the level of water has come to 'm2' ml. There are two categories of pebblels small and big in the field. Small pebble can raise the level of water by 'x' ml and big pebble can raise the level of water by 'y' ml. There are 'n' small pebbles. Crow prefers to place small pebbles in jug and then only takes big pebbles. Write an algorithm and the Python code to determine the number of pebbles required to raise the water to ‘m2’ level. For example, if value of 'm1', 'm2','x','y' and 'n' are 54, 300, 10, 20, 10 respectively then the number of pebbles required is 13.

**Input Format:**

Read the initial level of water in jug (in ml)

Read the level of water in jug required for drinking (in ml)

Read the height which small pebble will increase (in ml)

Read the height which big pebble will increase (in ml)

Read the number of small pebbles

**Output Format:**

Number of big pebbles required

1. Work and Men

A man engaged 'n' labourers to make’t’ toys in’d’ days. Assume that all men work with same speed and efficiency. After 'd1' days, he found that only 't1' toys were made. Design an algorithm and write a Python code to determine the number of additional men to be employed to complete the task in time. For example, if n is 10, t is 320, d is 5, d1 is 3, and t1 is 120 then the number of additional men to be employed is 12. Assume that the speed of making toys is uniform for all men.

**Input Format:**

Read the number of labourers engaged in work

Read the total number of toys to be made (t)

Read the total number of days allotted for completion (d)

Read the number of days work had been done (d1)

Read the number of toys made in d1 days (t1)

**Output Format:**

Number of more men required for completing the job in allotted period