

Task 1: Motorbike

A motorbike costs £2000 and loses 10% of its value every year. Using a loop, print the value of the bike every following year whilst the value of the bike is greater than £1000.

Follow the instructions below:

1. Store the value of the bike against a variable
2. Create a while loop which subtracts 10% of the bikes value until the value reaches £1000

Task 2: Fruity Loops

You have been given a contract for the fruit shop, and they are wanting to make a display with names of the fruit written above them. They can order in nice, pretty letters from a crafts supply depot but need to know how many letters to be ordering.

Follow the instructions below:

1. Create a variable which enables the user to enter a string
2. Create variable count_vowel = 0
3. Iterate through the string using a for-in loop. This for loop will want to look through every letter of the fruit and determine how many vowels are within that word.
4. If the value is 'A', 'E', 'I', 'O', 'U', 'a', 'e', 'i', 'o', or 'u', add 1 to the vowel variable.
5. Print out to console an appropriate message to the uses which informs them of how many values are in the string.

Task 3: Volume

Write a program that includes a procedure to multiply 3 numbers together and outputs the result.

Follow the instructions below:

1. In the main body of the program input the lengths of the box: width, depth and height
2. Lengths should allow decimal places
3. Use the procedure to calculate their volume of the box
4. Modify the procedure to a function to return the volume and output the volume in the main program

Task 4: Pythagoras

Write a program that calculates the lengths of sides of a triangle using Pythagoras's Theorem. Pythagoras' Theorem states that the square of the long side (c) of a right-angled triangle is the sum of the squares of the two shorter sides (a and b).

$$c^2 = a^2 + b^2$$

Follow these instructions:

1. Print a menu:

Pythagoras' Calculator

- 1 - Find the length of a given b and c
- 2 - Find the length of b given a and c
- 3 - Find the length of c given a and b
- 9 - Exit

2. Enter an option:

If '1' is entered, prompt for the length of sides: b and c, calculate the length of side: a and print the answer; Reprint the menu.

If '2' is entered, prompt for the length of sides: a and c, calculate the length of side: b and print the answer; Reprint the menu.

If '3' is entered, prompt for the length of sides: a and b, calculate the length of side: c and print the answer; Reprint the menu.

If '9' is entered, print a goodbye message and exit the program.

If another value is entered, print an error message and print the menu again.

3. Remember you will need to import the math module (import math) and use the sqrt() function.

Marking Criteria Task 1-4

	Pass	Merit	Distinction
Syntax	<ul style="list-style-type: none">Attempts to use Python syntax with some success	<ul style="list-style-type: none">Python syntax is largely accurate with some errors	<ul style="list-style-type: none">Python syntax is consistently accurate and appropriate to the task

Marking criteria Task 1

	Pass	Merit	Distinction
Code	<ul style="list-style-type: none">Attempts to store motorbike value against a variableAttempts to set up a loopAttempt to calculate the 10% decrease in value	<ul style="list-style-type: none">Successfully stores motorbike value against a variableSets up a whilst loopCalculates the 10% decrease in value	<ul style="list-style-type: none">Converts to loop into a function or procedure and passes in new parameters

Marking criteria Task 2

	Pass	Merit	Distinction
Code	<ul style="list-style-type: none">Stores a string in a variableAttempts to count the number of vowels and consonants within the variable	<ul style="list-style-type: none">Uses any form of loop to iterate over the stringCounts the correct number of vowels within the string	<ul style="list-style-type: none">Converts to loop into a function or procedure and passes in new parameters

Marking criteria Task 3

	Pass	Merit	Distinction
Code	<ul style="list-style-type: none">Attempts to calculate volumeNumbers are not in the appropriate datatypeHave created a procedure	<ul style="list-style-type: none">Volume is calculated correctlyNumbers are displayed as floatsProgram is converted into a function and the output volume is returned to the main program	<ul style="list-style-type: none">Successfully passed in new parameters into the function

Marking criteria Task 4

	Pass	Merit	Distinction
Code	<ul style="list-style-type: none">• Attempts to create a function or procedure• Prints a menu to the user• Attempts to create an IF statement to enable users to input lengths	<ul style="list-style-type: none">• Creates a function which returns the value back to main program• Successfully creates an IF statement to enable users to input lengths• Prints a goodbye message and exits the program	<ul style="list-style-type: none">• Successfully passed in new parameters into the function