# Worksheet 1 Recap of Skills

1. **Debugging**

Rewrite and test the following code, making sure you remove all of the errors.

target = 12  
guesses = 0  
userChoice = input(“Guess the number: ”)  
while userChoice == target  
 guess = guess \* 1  
 if UserChoice > target:  
 print(“Guess higher!”)  
 else:  
 print(Guess lower!”)  
print(“It took you” , userChoice, “guesses”)

1. **Inputs & Outputs**

Rewrite and test the following code, making sure you remove all of the errors.

worldRecord = False  
lane = 1  
athlete = input(“Who is in lane” + lane + “? ”)  
country = input(“Which country does” + athlete + “represent? ”)  
time = input(“Enter the 100m time for” , athlete)  
  
if time < 8.0 or time > 20.0:  
 time = “invalid”  
elif time < 9.58:  
 worldRecord = True  
  
print(“Competitor: ” , athlete)  
print(“Country: ” + country)  
print(“Lane number: ” + lane)  
print(“100m time: ” + time)  
print(“New world record: ” + worldRecord)

1. **Arithmetic**

Write a program for each of the following tasks:

1. Ask the user for 2 numbers
   * calculate the **total** (add)
   * calculate the **difference** between the 1st and the 2nd (subtract)
   * calculate the **product** (multiply)
   * calculate the division of 1st ÷ 2nd
   * calculate the floor division (whole number when divided)
   * calculate the modulo (remainder when divided)
2. Ask for the length, width and height of a cuboid
   * calculate the **volume** (length x width x height)
3. Ask for 5 numbers
   * calculate the **total**
   * calculate the **mean average**
4. Ask for the radius of a circle (π = 3.14)
   * calculate the **circumference** (2 x π x r)
   * calculate the **area** (π x r2)
5. Ask for a number
   * calculate the square of that number (num2)
   * calculate that number6
   * calculate the square root of that number

Test your program with the following data:

1. 1st number = 13, 2nd number = 5
   * Total = 18, Difference = 8, Product = 65,   
     Division = 2.6, Floor division = 2, Modulo = 3
2. length = 10, width = 5, height = 8
   * Volume = 400
3. numbers: 3, 7, 2, 15, 6
   * Total = 33, Average = 6.6
4. radius = 6
   * Circumference = 37.68, Area = 113.04
5. number = 4
   * Square = 16, Number6 = 4096, Square Root = 2
6. **Extension**

Find a copy of some typical formulae you would need for maths (or physics).

You might have a reminder of the key formulae in your student planner, in a text book or in your exercise book. If you don’t have one then try searching for “gcse maths formulae” online.

Create a program that will carry out calculations using a wide range of different formulae – making sure you can complete the formulae with whole numbers and with fractional numbers where necessary.

Create a menu system so that the user can choose which calculations to carry out.