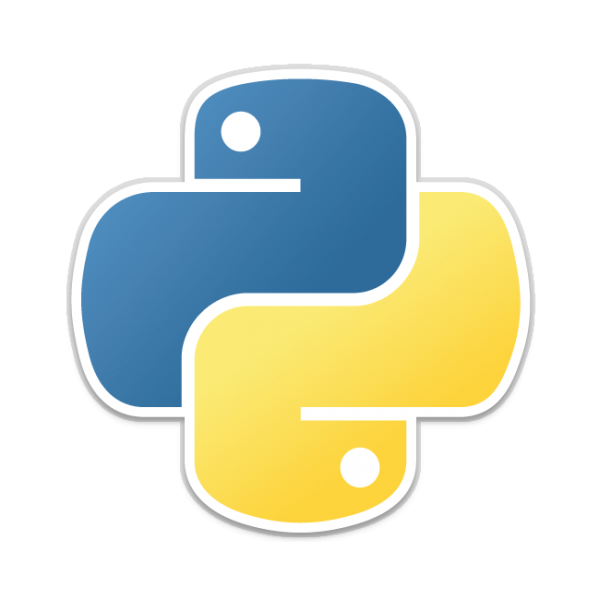
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| Computer Science 2016-2017 |
| Python Challenges |
| Year 10 |

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| Gosforth Academy |



Python Challenges – Arithmetic

Write a program to work out the area of a rectangle with length 5cm and width 3cm.

Create suitable variables to store the length and width of the rectangle.

Calculate the area and display the result.

**Extension**

Display the volume of a cuboid with length 6cm, width 5cm and height 3cm.

Is there a quicker calculation for working out the volume of a cuboid? Hint: Remember \*\* for ‘to the power of’.

Write a program to work out the area of a triangle.

Create suitable variables to store the height and width of the triangle.

Calculate the area and display the result.

Write a Python program to calculate and output the area of a trapezium which has a height of 5cm, a base of 10cm and a top side measurement of 7cm.

Write a Python program to calculate and output the area of parallelogram with a base of 10cm and a height of 6cm.

Write a Python program to calculate the area of a circle with a radius of 7cm. Assume for the purposes of the program that π = 3.14.

Write a program that will work out the distance travelled if you travel at 65 km an hour for 4 hours.

**Extension**

Get the program to tell you the speed you would have to travel at in order to travel 1500 km in 6 hours.

Write a program that will calculate a shopping bill for 3 items costing £3.45, £6.79 and £9.88. Store each item’s price and the total in appropriately named variables.

**Extension**

Calculate the VAT on the total. Assume VAT is 17%. Calculate the final bill by adding the VAT to the original total.

Write a program that will print out all of the numbers between 1 and 10 and show the user which ones are factors of 10 by using the MOD function (%) in Python.

**Extension**

Do the same for the numbers 1 to 24 showing the factors of 24.

Write a Python program which stores your first name and surname in two separate variables and then print them in reverse order with a space between them.

Write a program that will ask you your name

It will then display ‘Hello Name’ where ‘Name’ is the name you have entered.

**E.g.**

**What is your name?**

**Ada**

**Hello Ada**

Create a program that stores a number and then prints out a list of all the factors of that number.

(If you don’t know what a divisor is, it is a number that divides evenly into another number. For example, 13 is a divisor of 26 because 26 / 13 have no remainder.)

Ask the user for a number.

Depending on whether the number is even or odd, print out an appropriate message to the user.

*Hint: how does an even / odd number react differently when divided by 2?*

Extras:

1. If the number is a multiple of 4, print out a different message.
2. Ask the user for two numbers: one number to check (call it num) and one number to divide by (check). If check divides evenly into num, tell that to the user. If not, print a different appropriate message.

Section 2