

# Assignment #1 : Frequently Asked Questions

1. Q: How do I ask the user for three numbers?

A: Use `input()`:

```
A = float(input('A? '))
B = float(input('B? '))
...
```

2. Q: How do I add up several numbers in an infinite series?

A: Here are some examples.

$1 + 2 + 3 + \dots + n$ :

```
sum = 0
for i in range(1, n + 1):
    term = i
    sum += term
```

$1 + 3 + 5 + 7 + \dots + (2n-1)$ :

```
sum = 0
for i in range(1, n+1):
    term = 2 * i - 1
    sum += term
```

$1 - 2^2 + 3^2 - 4^2 \dots +/- n^2$ :

```
sum = 0
sign = 1
for i in range(1, n+1):
    term = i * i * sign
    sign = -sign
    sum += term
```

$1 + 1/2 + 1/3 + 1/4 \dots + 1/n$ :

```
sum = 0
```

```
for i in range(1, n+1):
    term = 1 / i
    sum += term
```

3. Q: What is Euclid's algorithm?

A: There are many ways to do this. Here is one from wikipedia:

```
def gcd(a, b):
    while b != 0:
        t = b
        b = a % b
        a = t
    return a
```

This loop continues, changing `a` and `b` until `b` is zero. Note that those three lines in the loop can be done with a single assignment:

```
def gcd(a, b):
    while b != 0:
        a, b = b, a % b
    return a
```

4. Q: How do I check if two files are the same?

A: Open both files. Read one file into a list of lines, and the other file into another list of lines.

Then simply check if the two lists are equal.

5. Q: How do I get the values in a `.csv` (comma-separated values) file?

A: Here is some code to get you started:

```
handle = open(file_name, "r")
lines = handle.readlines()
for line in lines:
    line = line.rstrip("\r\n") # go through all the lines
    fields = line.split(",") # remove trailing newlines
    # split into 3 fields
```

Q: In the data file, does every student take the same number of courses?

A: No. Some students take more courses, some take less. So, to get a grade-point average, you need to know the sum of a student's grade points, and also how many courses that student took.

Q: How do I track the sums of the scores?

A: Use a dictionary. Each key is a string (a student login) and each value is a float (sum of that student's grade points). Alternatively, each value could be a list of grade points.