

##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 numbers in a file?

A: Here is some code that gets all the numbers into one list:

```
handle = open(file_name, 'r')  
lines = handle.readlines()  
numbers = []  
for line in lines:  
    fields = line.split()  
    for field in fields:  
        numbers.append(float(field))
```