

ICS4 Assignment #3

While Looping Structure

1. Using a **while loop**

- a) output all multiples of 4 between -444 and 448
- b) count backwards from 10000 to 0 in steps of -5
- c) create the sequence { 1,3,6,10,15,21,28,36,45,55,66,78}

2. Use a while loop to calculate and output the sum of

1, $\frac{1}{2}$, $\frac{1}{4}$, $\frac{1}{8}$... $\frac{1}{512}$, $\frac{1}{1024}$

3. Using an indefinite loop, find a **positive integer value** so that $3x^2 - x = 1564$. This is known as a **brute force method** of solving equations.

4. Simulate the rolling of 8 dice. Keep rolling these simulated dice until **8** sixes appear. Output how many rolls were required to do this. I would not suggest outputting each iteration of rolls as it makes take a very long time.

```
import random # at top of code
```

```
dice=random.randint(1,6)# generates number between 1 and 6
```

5. Careless land management causes approximately 1.2 percent of the topsoil to erode each year. It is then effectively lost forever, since it takes nature about 500 years to produce 2.3 cm of topsoil. At 9cm or less the topsoil is so shallow that crops cannot be grown on a large scale. If Canada has about 35cm of topsoil, how many years will it take for the depth to be reduced to 9cm or less.

6. Have the user enter three integers (a,b,c) and output how many numbers between 'a' and 'b' are divisible by 'c'. Also, output these numbers