Computer Programming with Python – Exercises

Pr 1 Write a program that displays the first ***n*** powers of 2. Number and then the power. Do this by using `for i in range(n + 1)`.

Pr 2 Write a program to print out the numbers from 1 to ***n*** but omit printing all the even numbers.

Pr 3 As above, write a program to print out the numbers from 1 to ***n*** but omit printing all the even numbers and all the numbers divisible by 3.

Pr 4 Write a program to count all the numbers from 1 to 1 000 000 which are not divisible by 2 or 3 or 5 or 7. Output the results (the answer is 228571).

Pr 5 Write a program that determines whether three side lengths are a triangle or not. You need to check for these inequalities: **`a + b > c`**, **`a + c > b`**, and **`b + c > a`**. If all the inequalities are true, then the three sides make a triangle. If at least one inequality is false, then the three sides will not form a triangle. *[2 marks]*

Pr 6 Write a program that displays the first ***n*** terms of the triangular sequence. This is the sequence that goes 1, 3, 6, 10, 15, 21,… The rule is that you add on 2, then add on 3, then add on 4, etc. *[2 marks]*

Pr 7 Write a program that prints out which terms of the triangular sequence are also perfect squares. *[2 marks]*

Pr 8 Write a program that inputs a number and adds up each of its digits. *[for fun]*

In order to help you, here is a program that prints the individual digits of a given number:

```
n = input('Enter a number = ')
x = n
digit = 0
while x != 0:
       digit = x % 10
       print digit,
       x = x / 10
print 'Done.'
```

[1 mark each unless otherwise stated, 10 marks total]

Exercise (Program #)	*Recommended programming language elements to use*
Pr 1	**`for`**
Pr 2	**`for, if`**
Pr 3	**`for, if`**
Pr 4	**`for, if`**
Pr 5	**`if`**
Pr 6	**`for, if`**
Pr 7	**`for, if`**
Pr 8	**`Clues given`**