Chapter 3 Sets

1. I know that 2 sets are **equal** if they contain **exactly the same** elements.
2. I know that **Union** of 2 sets **AUB** is found by listing all of a A and then listing any in B not already found in A
3. I know that the **Intersection** of 2 sets **AnB** is the set of elements common to A and B. I read the first element in A and check to see if it is in B and if it is I record it. I repeat for each element in A.
4. I know that set B is a **subset** of set A if all the elements of B are contained in A. **B C A**
5. I know that the **Universal** set **U** is the set from which all other sets being considered are taken from.
6. I know that the **Complement** of a set **A’** is the set of elements in the universal set not in **A**
7. I know that the **Cardinal Number #** of a set is the **number of elements** in the set.
8. I can list the elements of sets based on the above definitions.
   Q3 Q6 Page 33
9. I know that **Set Difference A\B (A less B) is the set of elements of A which are not in B**
   I know how to find the set A\B by placing A over B .. cancelling out above and below and just writing what is not crossed out on the top as my answer.

3 Set Venns

10. Given information, I can draw a **3 set venn** diagram by
    starting in the middle with #(AnBnC) then working out wards ,
    looking at and filling in #(AnB) , #(AnC) and #(BnC)
    then filling in the A only, B only and C only areas by subtracting the contents already worked out in A from A[ ] etc. Finally I can take all the values from #U to find #(AUBUC)’
11. **I can clearly identify the areas of a 3 set venn which when added give/denote**

    (1) ....the number of people who .... do ‘All 3’
    (2) Do....‘2 Only’
    (3) Do...’1 Only’
    (4) ....the number of people who...do ‘at least 3’
    (5) do ... ‘At least 2’
    (6) Do ... ‘At least 1’

12. I can solve x variable type venn problems mindful of the areas mentioned in 11. above.
    Q6 Pg 44 and Q10 Page 45

13. **I know that the Union** of 2 sets **AUB** and the **Intersection** of 2 sets **AnB** are **commutative** (order of sets does not matter)
    i.e given 2 sets A and B

    If **(AUB) = (BUA)** then this proves/shows that **the union of sets is commutative**

    If **(AnB) = (BnA)** then this proves/shows that **the intersection of sets is commutative**

14. Set difference is not commutative ie For 2 sets A and B A\B ≠ B\A
    Q4 Page 36
15. I know that **Union and intersection of sets are associative...set difference is not.**

I know that questions dealing with the 'associative' property will contain 3 sets A, B and C AS WELL AS THE SAME SYMBOL BETWEEN THEM i.e.

An(BnC) = (AnB)nC OR AU(BUC) = (AUB)UC See Example 2 page 38.

16. I know that
    1. Union of sets **is distributive** over intersection
    2. Intersection of sets is **distributive** over union.

    Distributive type questions will have 3 sets A, B and C **BUT will contain both the U and the n symbols ....**You might be asked to complete the identity AU(BnC) = ???

    Answer ... AU(BnC) = (AUB)n(AUC) ......'shows Union is distributive over Intersection'

    And .... An(BUC) = (AnB)U(AnC) .... 'shows Intersevtion is distributive over Union'

    Q10, Q11 and Q12 page 41

17. **Given #U, #(A) and #(B)**

I can find the **minimum/least value of #(AnB) by finding [#(A)+ #(B)] - #U (placing these onto a Venn will allow me to find the MAX #(AUB))**

I know that the **maximum/greatest value of #(AnB) = Smallest Set # (placing these onto a Venn will allow me to find the MIN #(AUB))**

See Q12 Page 34

18. Given #(A), #(B) and #(AUB)' I can find

The greatest value of #U => #(A) + #(B) + #(AUB)' (as disjoint sets)

The least value of #U => largest set # + #(AUB)' (as the smaller on becomes a subset of the large one)