Power Set

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- Determine the power set for the following set

A = {p,q,r,s}

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- The Power Set of A , denoted *P*(*S)* , is an exhaustive list of all subsets of set A.

- The null set Ø and A are two such subsets.

Power Set

- Determine the power set for the following set

A = {p,q,r,s}

- Cardinality of set A is 4
- Cardinality of power set of A is 2^4 , i.e. 16

Size of subset	Subsets	Number of subsets
0	∅	1
1		
2		
3		
4	{p,q,r,s}	1

Size of subset	Subsets	Number of subsets
0	∅	1
1	{p},{q},{r},{s}	4
2		
3		
4	{p,q,r,s}	1

Size of subset	Subsets	Number of subsets
0	∅	1
1	{p},{q},{r},{s}	4
2		
3	{p,q,r},{p,q,s},{p,r,s},{q,r,s}	4
4	{p,q,r,s}	1

Size of subset	Subsets	Number of subsets
0	∅	1
1	{p},{q},{r},{s}	4
2	{p,q},{p,r},{p,s},{q,r}, {q,r},{r,s}	6
3	{p,q,r},{p,q,s},{p,r,s},{q,r,s}	4
4	{p,q,r,s}	1

Power Set

- N.B. The number of subsets of size ***k*** are ***binomial coefficients***.