Set Theory Symbols and Definitions

Symbol	Name	Definition	Example
$\{\ \}$	Set	A collection of elements	A = {2,7,8,9,15,23,35}
$A \cap B$	Intersection	Objects that belong to set A and set B	If set A = {1,2,3} & set B = {2,3,4} then $A \cap B$ = {2,3}
$A \cup B$	Union	Objects that belong to set A or set B	If set A = {1,2,3} & set B = {4,5,6} then $A \cup B$ = {1,2,3,4,5,6}
$A \subseteq B$	Subset	Set A is a subset of set B if and only if every element of set A is in set B.	If set A = {a,b,c} & set B = {a,b,c} then $A \subseteq B$.
$A \subset B$	Proper Subset	Set A is a proper subset of set B if and only if every element in set A is also in set B, and there exists at least one element in set B that is not in set A.	If set A = {a,b} & set B = {a,b,c,d} then $A \subseteq B$.
$A \not\subset B$	Not Subset	Subset A does not have any matching elements of set B.	If set A = {a,b} & set B = {c,d,e,f} then $A \not\subseteq B$.
$A \supseteq B$	Superset	Set A is a superset of set B if set A contains all of the elements of set B.	If set A = {d,e,f} & set B = {d,e,f} then $A \supseteq B$.
$A \supset B$	Proper Superset	Set A is a proper superset of set B if set A contains all of the elements of set B, and there exists at least one element in set A that is not in set B.	If set A = {4,5,6} & set B = {5,6} then $A \supset B$.
$A \not\supset B$	Not Superset	Set A is not a superset of set B if set A does not contains all of the elements of set B.	If set A = {a,f,c,d} & set B = {b,f} then $A \not\supset B$.
$\mathcal{P}(A)$	Power Set	Power set is the set of all subsets of A, including the empty set and set A itself.	If set A = {1,2,3} then $\mathcal{P}(A)$ = { }, {1}, {2}, {3}, {1,2}, {1,3}, {1,2,3}
$A = B$	Equality	Set A & set B contain the same elements.	If set A = {2,3,4} & set B = {2,3,4} then $A = B$.