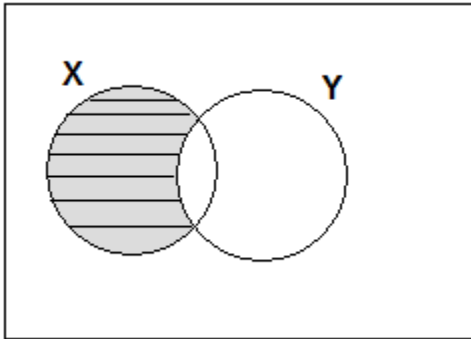### 2.1.3 Complement
When given two sets, the **compliment** is the set that contains all the elements that are in one set, but not the other.

In the above picture the shaded region represents X complement Y. It contains all the elements that are X and not in Y.
This can be written as **X-Y.**

2.1.4 Putting Things Together
These sets can be combined to make more complex equations. They can easily be solved by breaking the equation down into smaller parts

$$X \cup (Y \cap Z) = (X \cup Y) \cap (X \cup Z)$$

X	U	Y ∩ Z		X U Y	∩	X U Z

X	union	Y intersect Z		X union Y	intersects	X union Z

X ∪ (Y ∩ Z)	(X ∪ Y) ∩ (X ∪ Z)

X union (Y intersect Z)   (X union Y) intersects (X union Z)