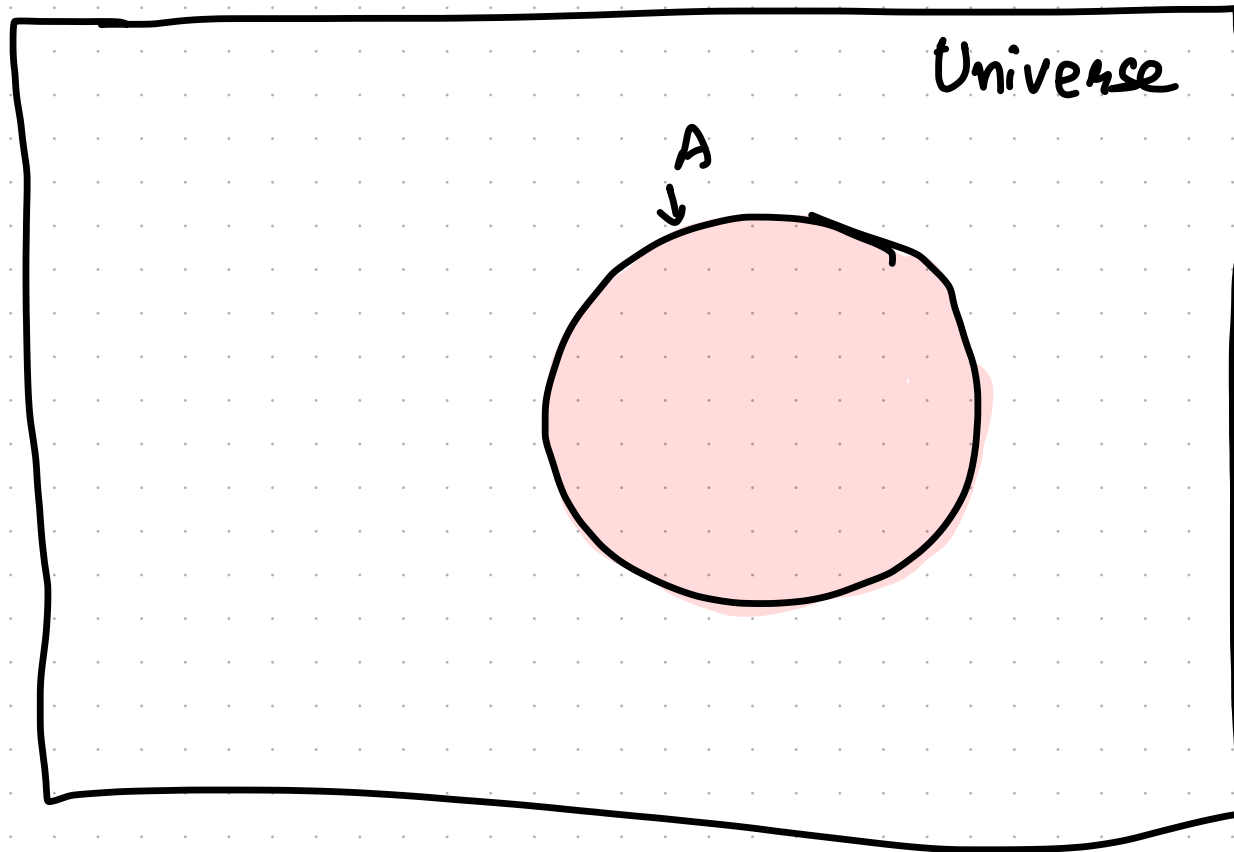


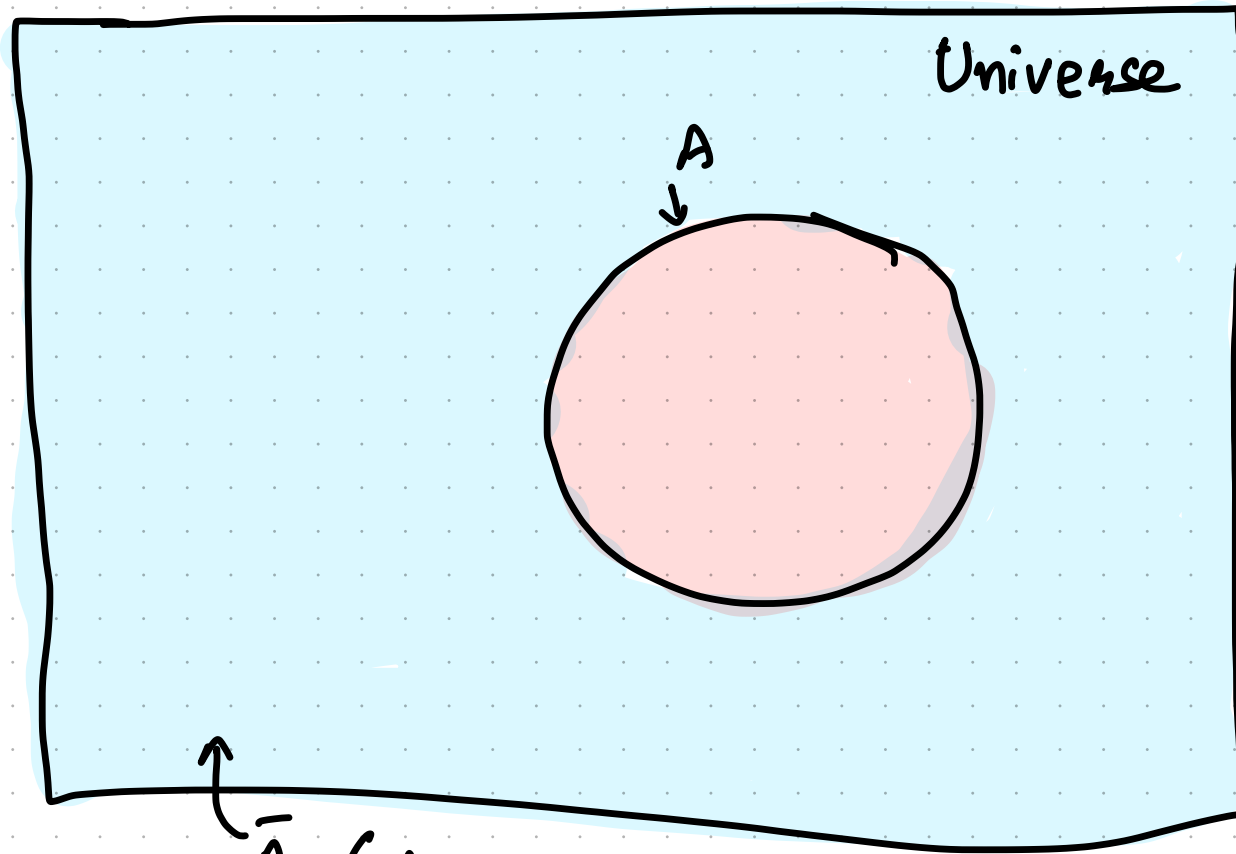


Universe



Universe :
All people

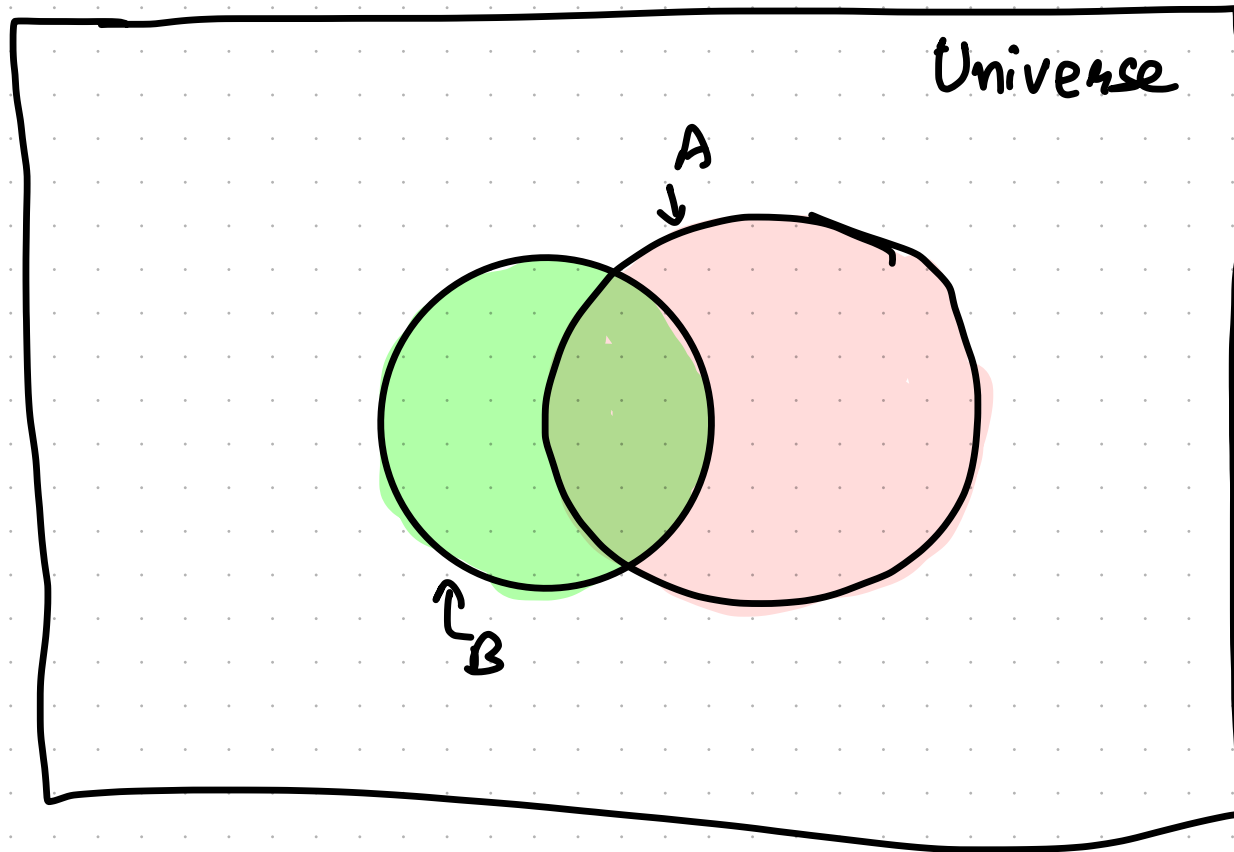
A :
People having
disease



Universe:
All people

A:
People having
disease

\bar{A} (A complement or Not A or $\neg A$)
People not having disease

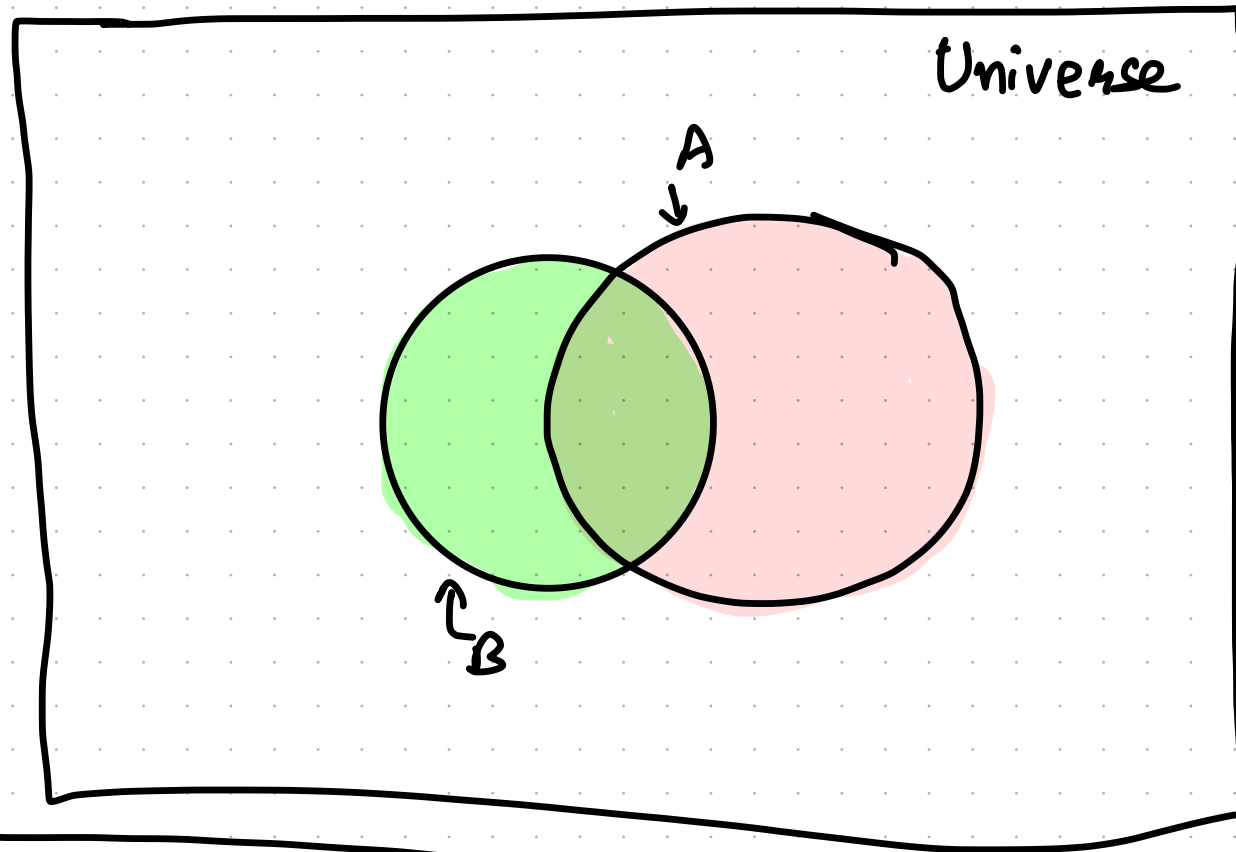


Universe:
All people

A:
People having
disease

B:
People tested
+ for disease

$\neg B$ or \bar{B} : people
tested - no for
disease



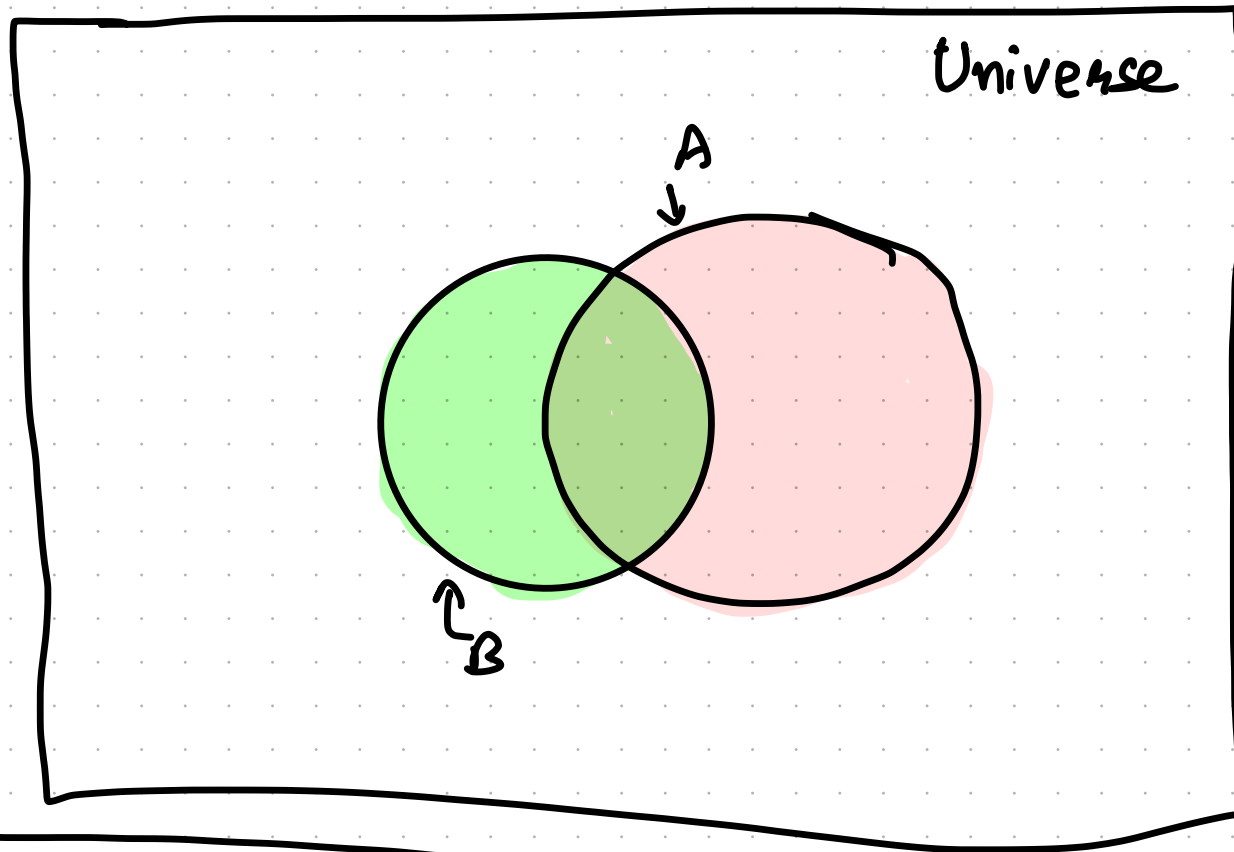
Universe:
All people

A:
People having
disease

B:
People tested
+ for disease

$$P(\text{Disease}) = \frac{|A|}{|\text{Universe}|}$$

$\neg B$ or \bar{B} : People
tested - no for
disease



Universe:
All people

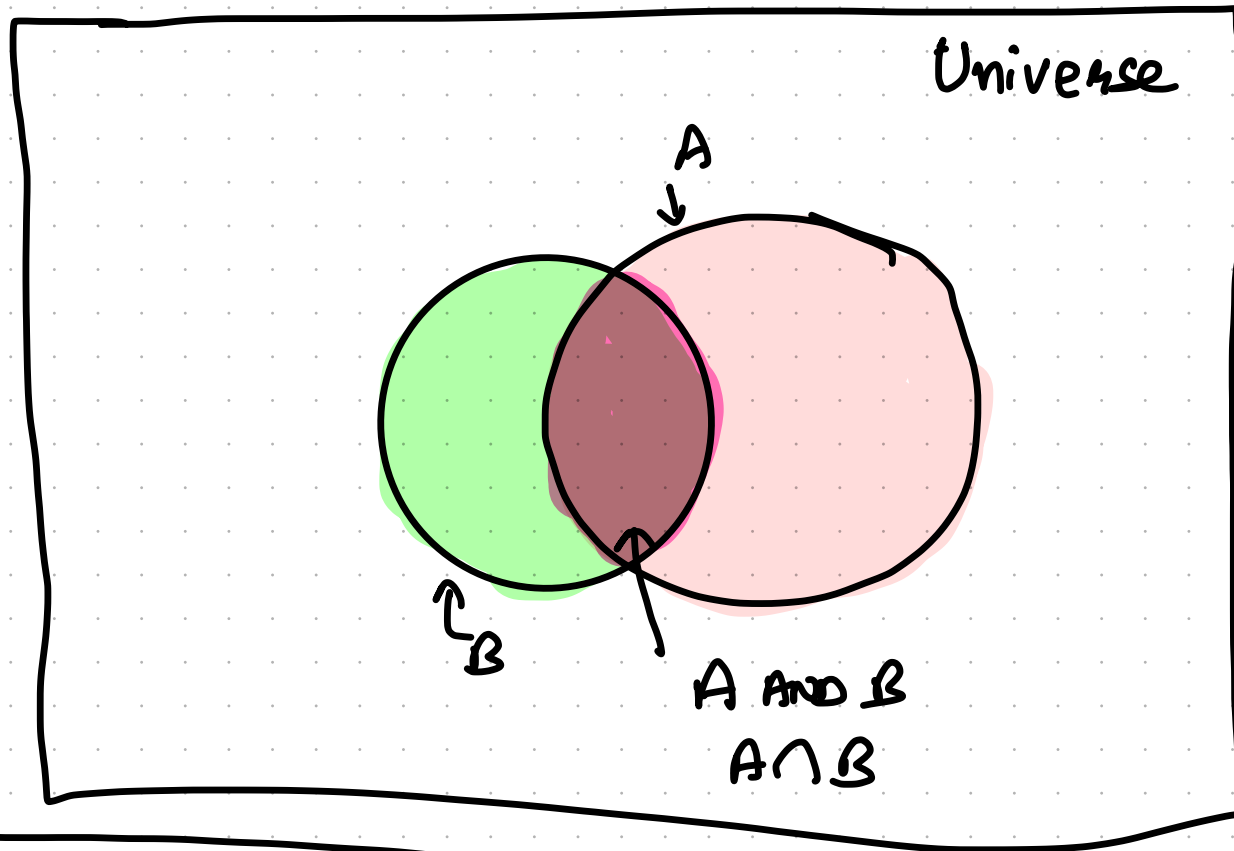
A:
People having
disease

B:
People tested
+ for disease

$$P(\text{Disease}) = \frac{|A|}{|\text{Universe}|} = P(A)$$

$$P(\text{Test}) = \frac{|B|}{|\text{Universe}|} = P(B)$$

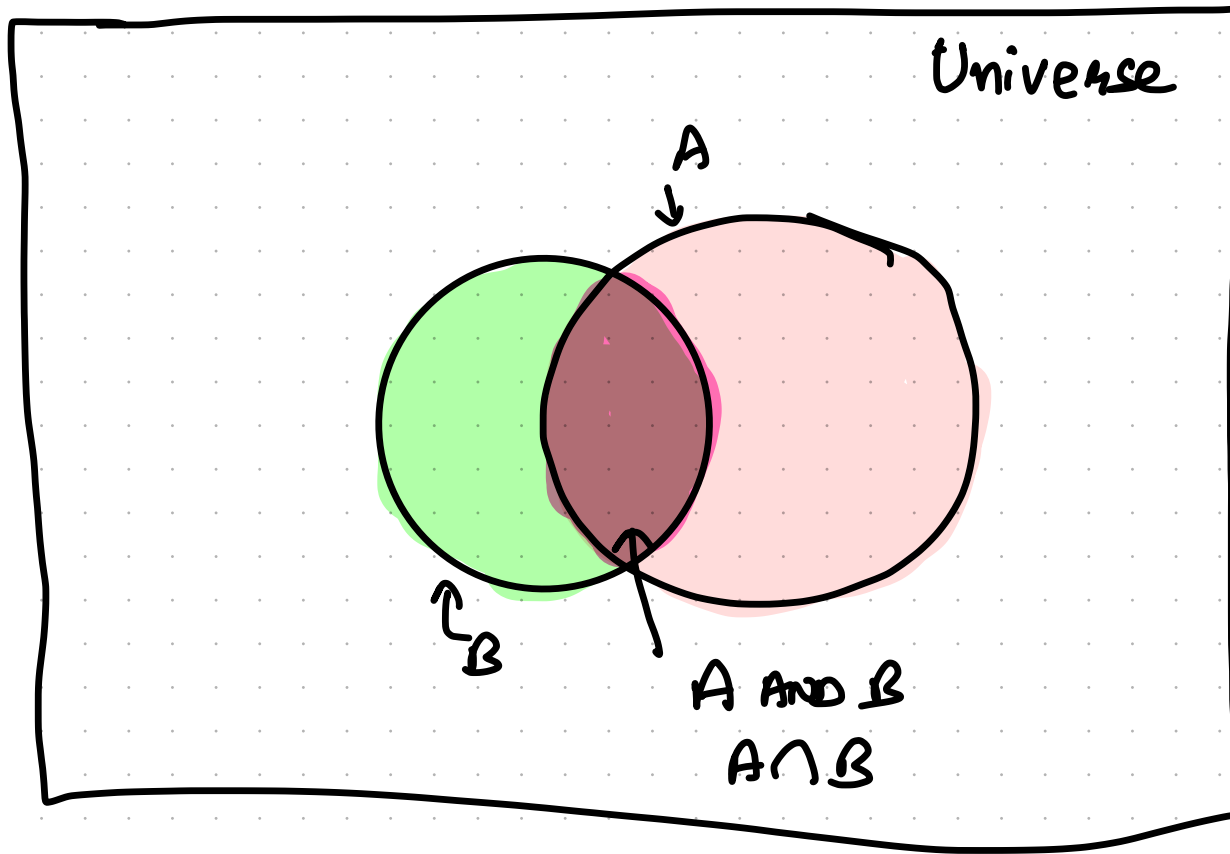
$\neg B$ or \bar{B} : People
tested - no for
disease



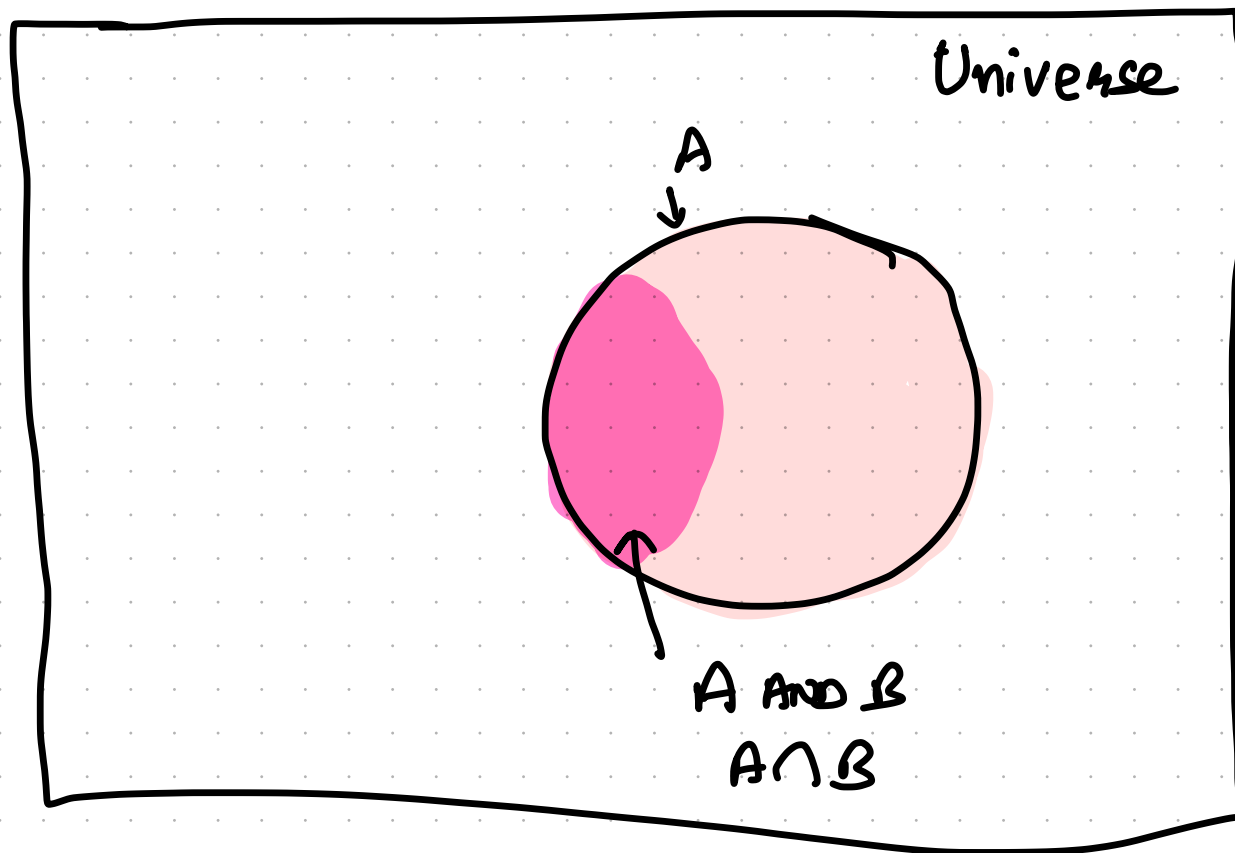
$$P(\text{Disease}) = \frac{|A|}{|\text{Universe}|} = P(A)$$

$$P(\text{Test}) = \frac{|B|}{|\text{Universe}|} = P(B)$$

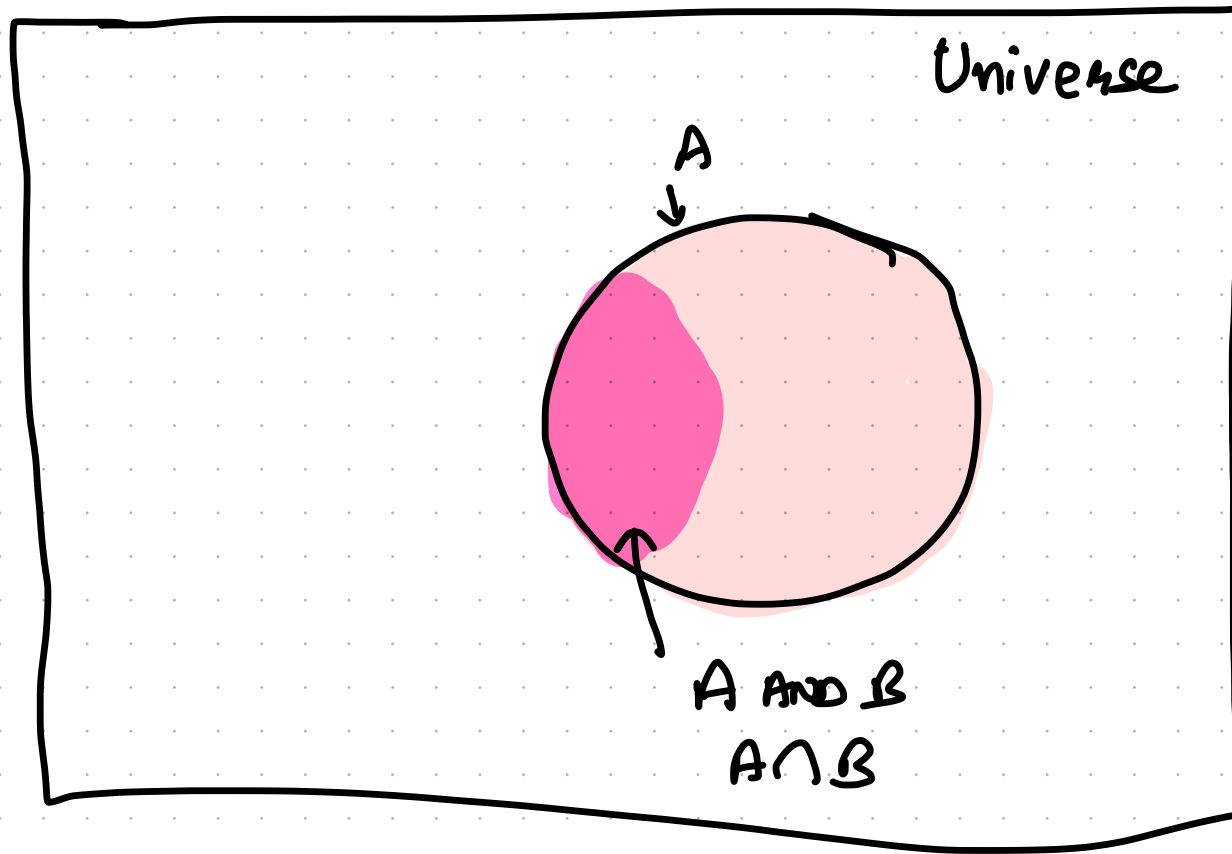
$$P(\text{Disease AND TEST}) = P(A \text{ AND } B) = \frac{|A \cap B|}{|\text{Universe}|}$$



$P(\text{Test}(=T) \text{ GIVEN DISEASE}(=T))$

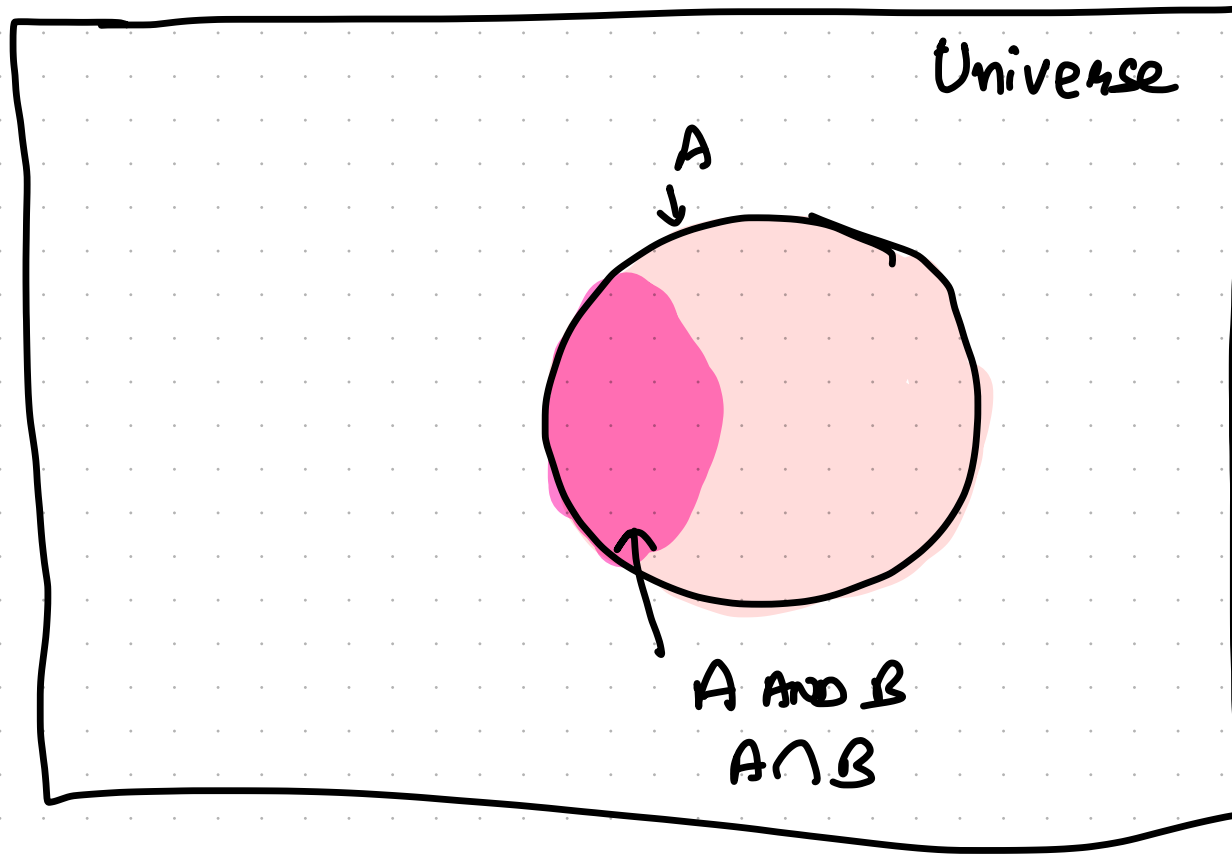


$$\begin{aligned}
 & P(\text{Test}(=T) \text{ GIVEN DISEASE}(=T)) \\
 &= P(B|A) \\
 &= \frac{|A \cap B|}{|A|} = \frac{\frac{|A \cap B|}{|\text{Universe}|}}{\frac{|A|}{|\text{Universe}|}} = \frac{P(A \cap B)}{P(A)}
 \end{aligned}$$



$$P(B|A) = \frac{P(AB)}{P(A)}$$

$$P(A|B) = \frac{P(AB)}{P(B)}$$



$$P(B|A) = \frac{P(AB)}{P(A)}$$

$$P(A|B) = \frac{P(AB)}{P(B)}$$

$$\begin{aligned} P(A|B) P(B) \\ = P(AB) P(A) \end{aligned}$$