

## Corollary

For any  $A, B$ :

$$\mathbb{P}(A) = \mathbb{P}(A \cap B) + \mathbb{P}(A \cap B^c).$$

## Example 1

Let

$$\mathbb{P}(\text{it is raining and I have an umbrella}) = 0.2,$$

and

$$\mathbb{P}(\text{it is raining and I do not have an umbrella}) = 0.4.$$

Then the probability that it is raining is 0.6.