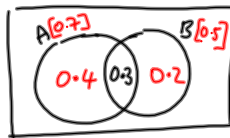


Leaving cert sample 2010

**Question 1**

The events  $A$  and  $B$  are such that  $P(A) = 0.7$ ,  $P(B) = 0.5$  and  $P(A \cap B) = 0.3$ .

- (a) Find
- $P(A \cup B)$



$$P(A \cup B) = P(A) + P(B) - P(A \cap B) = 0.9$$

- (b) Find
- $P(A|B)$

$$P(A|B) = \frac{P(A \cap B)}{P(B)} = \frac{0.3}{0.5} = \frac{3}{5} = 0.6$$

- (c) State whether
- $A$
- and
- $B$
- are independent events, and justify your answer.

if independent  $P(A) = P(A|B)$   
 but  $0.7 \neq 0.6$   
 $\Rightarrow$  not independent.