

Q20)

$$P(C|D) = 0.6$$

$$P(C|D) = \frac{P(C \cap D)}{P(D)}$$



1) $P(E) \geq 0$

2) $P(\Omega) = \underline{1}$

3)

$$P\left(\bigcup_n E_n\right) = \sum P(E_n)$$

if two events
are disjoint

(A) (B)

$$P(A) \perp P(B)$$

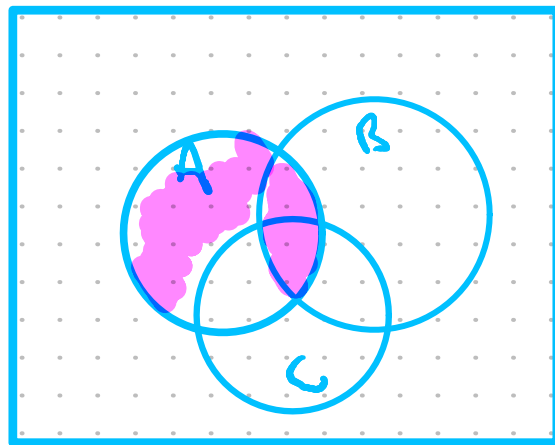
A	32	60
45	35	

Probability $\rightarrow$ Acts on Sets.

Sets

$\bigcirc A$ $P(A)$

Principle of Inclusion - Exclusion.

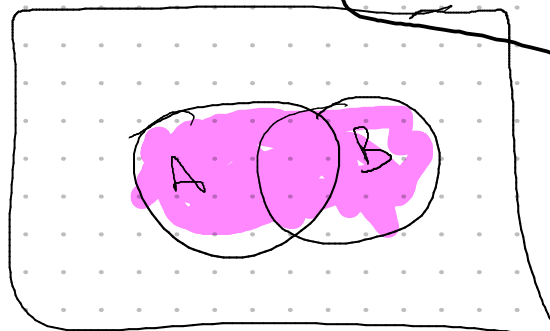


$A \cap (B \cup \bar{C})$

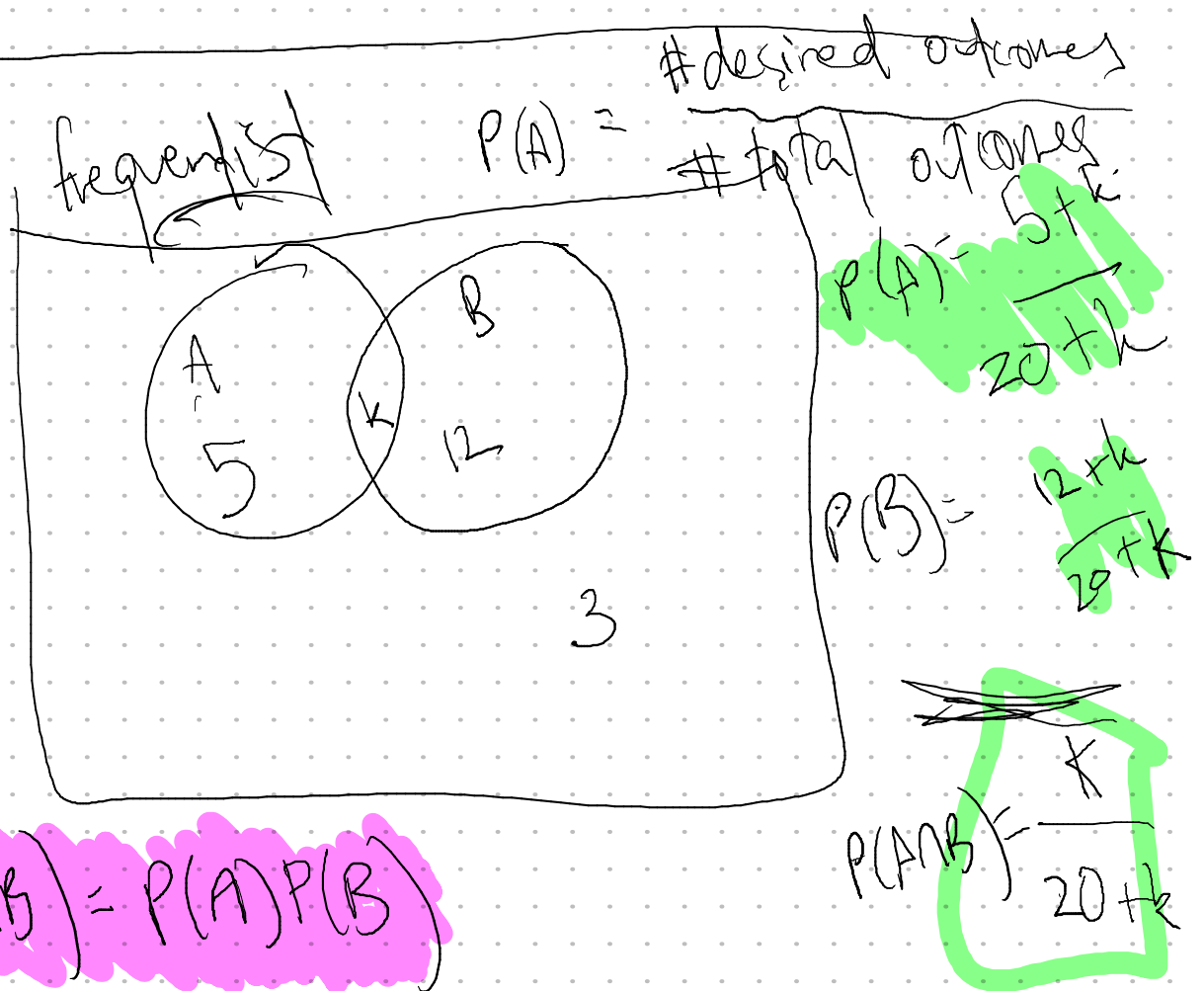
$(A \cap B) \cup (A \cap \bar{C})$

$$P(A \cup B) = P(A) + P(B)$$

$$- P(A \cap B)$$



Education is not the learning
of many facts. It is the
training of the mind to think.
— Einstein.



$$P(A \cap B) = P(A)P(B)$$

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

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

"conditional probabilities"

Q26) $P(X=x)$

x	1	2	3	4	5	6	7
$P(X=x)$	$\frac{1}{16}$	$\frac{4}{16}$	$\frac{1}{16}$				

$(1,1) = \frac{1}{4} \times \frac{2}{4} = \frac{2}{16}$
 $(2,2) = \frac{2}{4} \times \frac{1}{4} = \frac{2}{16}$

$\{1, 2, 2, 3\}$ $\{2, 3, 3, 4\}$

A ↑ random variables.

B

x	3	4	5	6	7
$P(X=x)$	$\frac{1}{16}$	$\frac{4}{16}$	$\frac{1}{16}$	$\frac{4}{16}$	$\frac{1}{16}$

b)

a	1	2	3
$P(A=a)$	$\frac{1}{4}$	$\frac{2}{4}$	$\frac{1}{4}$

b	1	2	3
$P(B=b)$	$\frac{1}{4}$	$\frac{2}{4}$	$\frac{1}{4}$