→ Two event : A, B

$$P(A|B) = \frac{P(A \cap B)}{P(B)} \quad \cdots\cdots (1)$$

Example: tow die D_1, D_2

sample = $\{(1,1), (1,2) \cdots (6,6)\}$

(36)

So, $P(A=5) = \frac{1}{6}$

2) $D_1 + D_2 <= 10$?

$\therefore P(D_1 + D_2 <= 10) = \frac{33}{36}$

Now, $P(D_1 = 5)$ give $D_1 + D_2 <= 10$?

$P(D_1 = 5 \mid D_1 + D_2 <= 10)$

$$\therefore P(A|B) = \frac{5}{33}$$ ✓

Now back to the formula:

$$A = \{D_1 = 5\}, B\{D_1 + D_2 \leq 10\}$$

$$P(A \cap B) = \frac{5}{36}$$

$$\therefore P(A|B) = \frac{\frac{5}{36}}{\frac{33}{36}}$$

$$= \frac{5}{33}$$ ✓