Tutorial 2

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

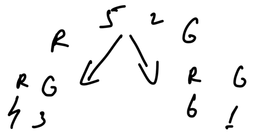
$$P(B|A) = \frac{P(A \cap B)}{P(A)}$$

Multiplication Rule

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

if the probabilies depend on each other we'll multiply them

if they are independant we'll add them



$$\left(\frac{5}{7} \cdot \frac{4}{7}\right)$$

$P(A|B)$ = B is guaranteed to exist

$P(A \cap B)$ = B is not guaranteed

$P(1R \cap 2R)$ = 1st ball is red, 2nd ball might be red

$P(1R|2R)$ = 1st ball is red, 2nd ball is guaranteed to be red.

$$P(R_1|R_2) = \frac{P(R_1 \cap R_2)}{P(R_2)} = \frac{20}{95} : \frac{32}{95} = \frac{20}{32} = \frac{5}{8}$$

$$P(E|A) = \frac{P(A|E) \cdot P(E)}{P(A)}$$