

$$P(A \text{ or } B) = P(A) + P(B) - P(A \text{ and } B)$$

e.g. P(throwing an odd number and throwing a number less than 4)

$$= \frac{3}{6} + \frac{3}{6} - \frac{2}{6}$$

$$= \frac{2}{3}$$

Contingency Tables

- Useful technique to visualise events
- Used to classify events according to two or more identifiable characteristics

e.g.

	Ace	Not Ace	Total
Red	2	24	26
Black	2	24	26
Total	4	48	52

- Contingency tables are converted into probability tables

e.g.

	Ace	Not Ace	Total
Red	2/52	24/52	26/52
Black	2/52	24/52	26/52
Total	4/52	48/52	1

Red = joint probability

Blue = marginal probability

Conditional probability

- The probability of an event occurring, given that another event has occurred indicates that they are **dependent events**
- **Conditional Probability**: for dependent events, the probability of event A given the condition that event B has already occurred is written as: $P(A/B)$

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