

1: The Multiplication Counting Principle – this is to find the total number of combinations given a number of different events:

2. Pick one (card) - Add and/or subtract probabilities $\frac{1}{52} + \frac{1}{52}$ or $\frac{1}{52} + \frac{1}{52} - \frac{1}{52}$

a. Mutually exclusive: no overlaps

b. Overlapping events: There are shared events so we need to subtract overlapping events

3. Pick more than one (card) - Multiply probabilities **Don't need to look for overlaps! Different events!

Independent	a) <u>With replacement</u> - $\frac{1}{52} * \frac{1}{52}$
Dependent	b) <u>Without replacement</u> $\frac{1}{52} * \frac{1}{51}$

1

Independent $P(A|B) = P(B|A)$

Dependent $P(A|B) \neq P(B|A)$