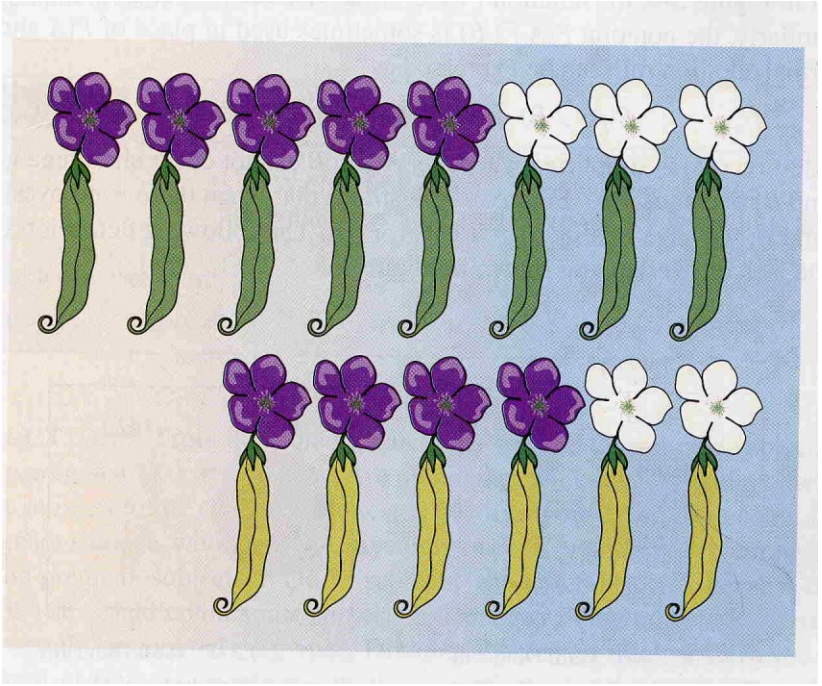
3-3 Addition Rule

P(A or B) = P(event A occurs or event B occurs or they both occur)



*Find P(green pod or purple flower) = $\frac{12}{14} = \frac{6}{7}$

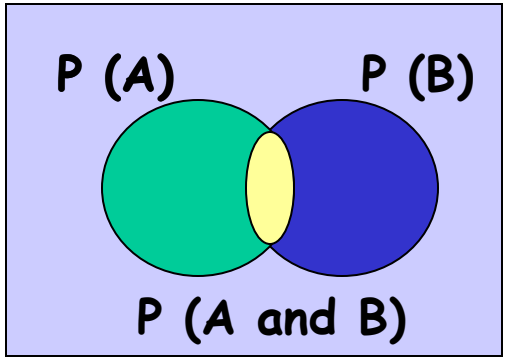
P(A or B) = P(A) + P(B) – P(A and B)

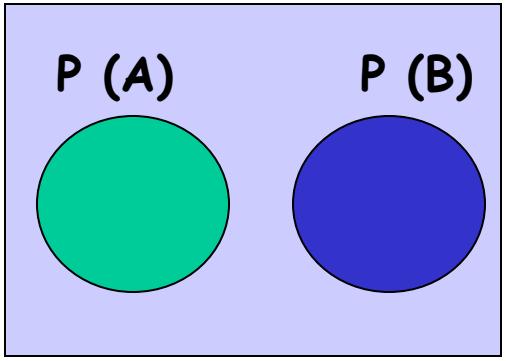
*Compound event-combining 2 or more simple events

3-3 Addition Rule

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

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





Events A and B are disjoint (or mutually exclusive). They cannot occur together.

Assuming that 1 person is randomly selected from the 99 people included in the study, apply the addition rule to find the probability of selecting a subject who is pregnant or had a positive test result

Table 3-1	Pregnancy Test Results	
	+ test	- test
Pregnant	80	5
Not pregnant	3	11

P(pregnant or Positive) = $\frac{88}{99}$

3-3 Addition Rule

Complementary Events

In reality, when a baby is born, P(boy)=0.5121.

Find $P(\overline{\text{boy}})$

Rule of Complementary Events

$P(A) + P(\overline{A}) = 1$

$P(\overline{A}) = 1 - P(A)$

$P(A) = 1 - P(\overline{A})$

$P(\text{boy}) = 1 - P(\text{boy}) = 1 - 0.5121 = 0.4879$

See section 3-4 for Multiplication Rule