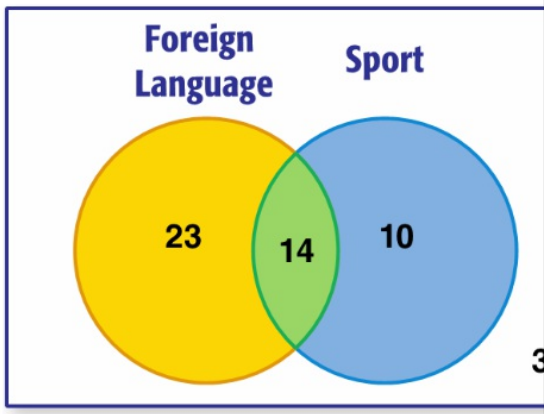
- So far:
  - Experimental and theoretical probability in one variable
  - More trials = better results!
- Today:
  - Calculating probability with TWO variables
  - Using two-way frequency tables

p. 9 Two Way Tables

Two Variables: Venn Diagram

1. How many students are taking a foreign language?
2. How many students play a sport?
3. How many students do both?
4. How many students do not play a sport and do not take a foreign language?
5. How many students play a sport but do not take a foreign language?



① 23 Students take only a F.L.
37 Students take a F.L.

② 10 Play only a sport

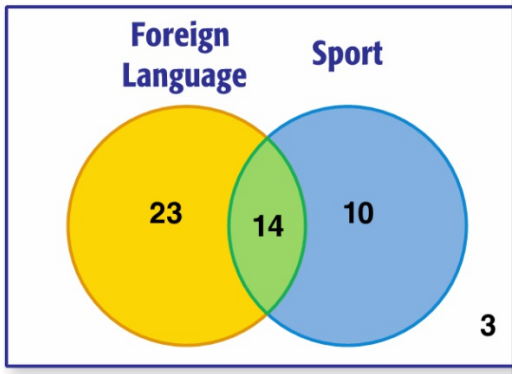
24 Students play sports

③ 14 Students both.

④ 3 students do neither

⑤ 10 students play a sport but not F.L.

1. What is the probability they are taking a foreign language AND a sport?
2. What is the probability they don't play a sport or take a foreign language?
3. What is the probability they are playing a sport?

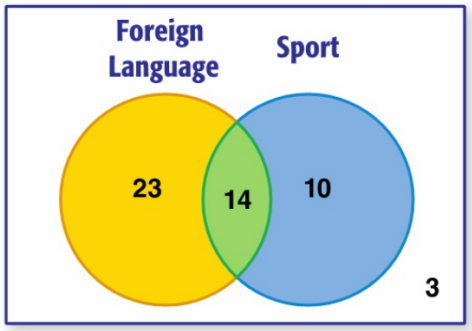


① $P(\text{F.L. and Sport}) = \frac{14}{\text{total } 50} = \frac{7}{25}$

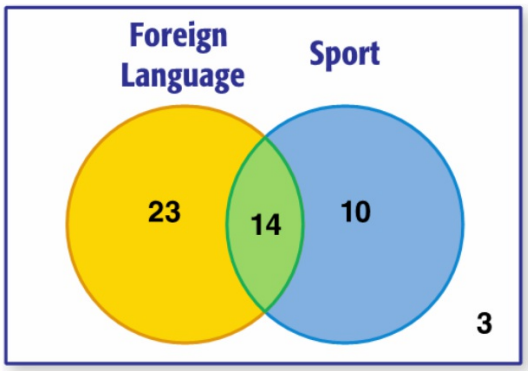
② $P(\text{Neither}) = \frac{3}{50}$

③ $P(\text{Sport}) = \frac{24}{50} = \frac{12}{25}$

Create a **two-way table** containing the information from the venn diagram.



	Play a Sport	Do Not Play a Sport	Total
Take a Foreign Language	14		
Do Not Take a Foreign Language			
Total			



	Play a Sport	Do Not Play a Sport	Total
Take a Foreign Language	14	23	14 + 23 or 37
Do Not Take a Foreign Language	10	3	10 + 3 or 13
Total	14 + 10 or 24	23 + 3 or 26	50