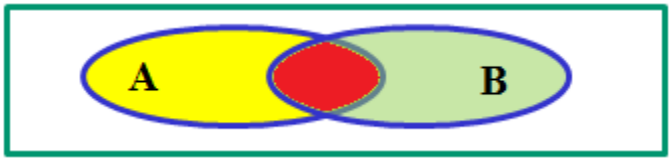
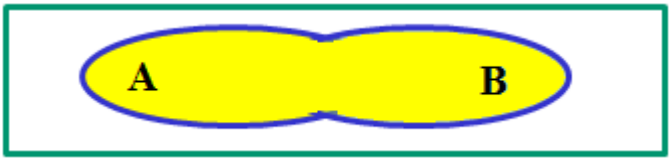
Venn Diagram Worksheet

- **Where two circles overlap is an intersection (A ∧ B Boolean: A and B)**
  This area is where both groups share something in common. Example: some kids are on both the football team (A) and the track team (B) – the red area.



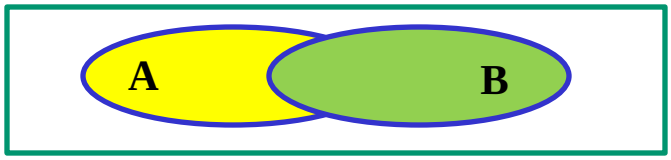
some

- **Combining two circles is a union (A ∨ B Boolean: A or B)**
  This area is combining both groups. Example: Mr Headlee makes victory cookies for both football (A) and track teams (B) – the yellow area.

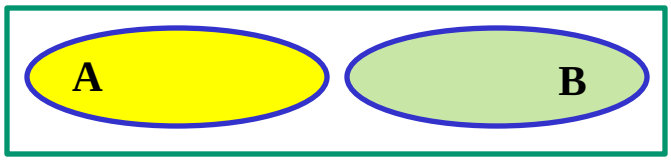


both

- **To exclude part of a circle is to not the intersection (A ∧ ~B)**
  This area is all of A, except that area in common with B. Example: The kids (A) who don't qualify for Regional's (B) are finished early – the yellow area.

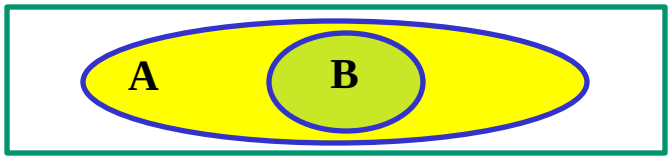


- **If two circles do not overlap, then they have nothing in common. Example: No one is currently on both the football team (A) and the fall cheerleading squads (B).**



none

- **If one circle is completely inside the other circle, then all of the inner circle is the same as the outer circle; however, not all of the outer circle is the same as the inner. Example: All kids who go to states (B) are on the track team (A); but not all kids on the track team go to states.**



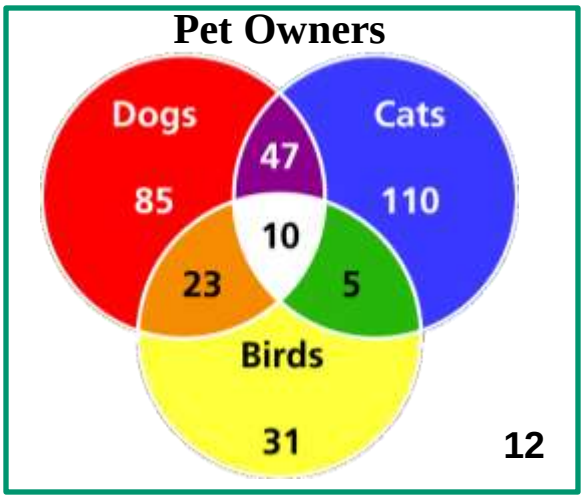
all

- **With three circles all the rules above apply, but with three circles; some use all three circles and some only use two circles at a time.**

Boolean	And	Or	Not
Symbols	∧	∨	~

Venn Diagram Worksheet

Use the Venn diagram to the right and answer all of the questions listed below.



Fill in the symbol table using the following examples

Example 1: D
Example 4: D ∧ C
Example 7: D ∨ C
Example 10: D ∧ C ∧ ~B
Example 13: D ∧ ~C ∧ ~B

1) **How many people own dogs?** 85 + 23 + 10 + 47 = 165
2) **How many people own cats?** _____
3) **How many people own birds?** _____
4) **How many people own dogs and cats?** 10 + 47 = 57
5) **How many people own dogs and birds?** _____
6) **How many people own cats and birds?** _____
7) **How many people own dogs or cats?** 85 + 23 + 10 + 47 + 5 + 110 = 280
8) **How many people own dogs or birds?** _____
9) **How many people own birds or cats?** _____
10) **How many people own dogs and cats, but not birds?** 47 +10 - 10 = 47
11) **How many people own dogs and birds, but not cats?** _____
12) **How many people own cats and birds, but not dogs?** _____
13) **How many people own only dogs?** 85 = 85
14) **How many people own only cats?** _____
15) **How many people own only birds?** _____
16) **How many people own pets other than dogs, birds or cats?** _____
17) **How many people own both dogs, cats and birds?** _____
18) **How many pet owners are there?** _____

Question	2	6	8	11	14	16	17
Symbols							