3.1 Sets and Set Notation

Wednesday, February 20, 2013
9:06 AM

Vocabulary

Set – a collection of distinguishable objects

ex the set of integers $I = \{\ldots -2, -1, 0, 1, 2, \ldots\}$

Element – an object in a set

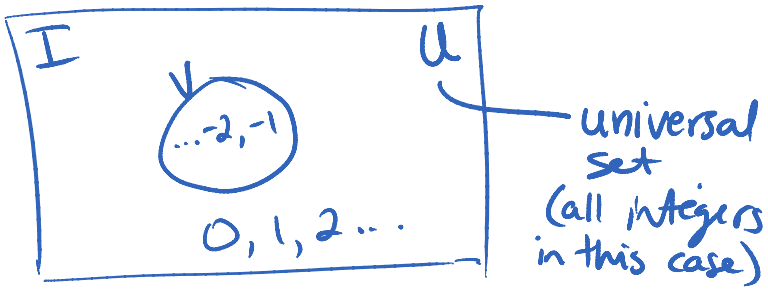
ex "−1" is an element of the set of integers

Subset – a set whose elements all belong to another set

ex the negative integers "V" is a subset of the integers "I"

$V \subset I$ "V is a subset of I"

Venn Diagram



Universal set – sample space – a set of all elements under consideration for a specific context (also includes elements in subsets)

ex universal set is the integers in our ex.

Complement – the elements in a universal set that **don't** belong to a subset of it.

ex V' is the complement of V

$V = \{\ldots -2, -1\}$

$V' = \{0, 1, 2 \ldots\}$

Disjoint – two or more sets with no elements in common

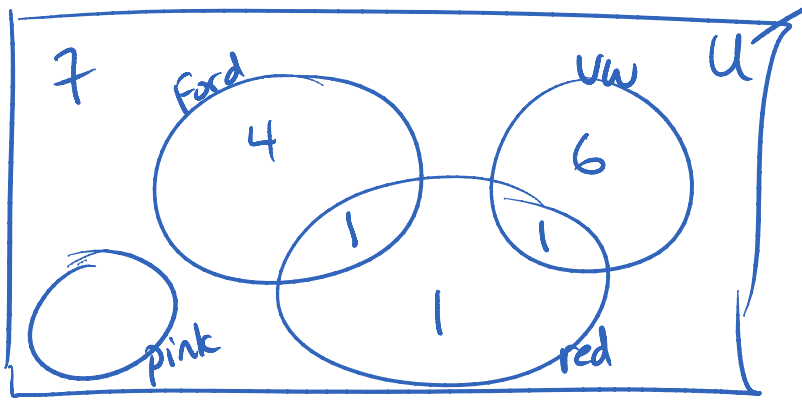
ex {even integers} and {odd integers} are disjoint sets.

Empty Set – a set with no elements

notation: $\{\}$ or $\emptyset$

Venn diagram of parking lot

5 Fords
7 VW
3 red – 1 Ford, 1 VW
0 pink
20 cars total



Complement of Ford = Ford′ = 15

complement of red = red′ = 17

disjoint sets => {Ford} and {UW}

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Notation: n(Ford) = 5

↖ "the # of elements in"

n(red) = 3

Practice pg 154 #1, 3, 4, 5, 17

3.2 Relationships btwn Sets

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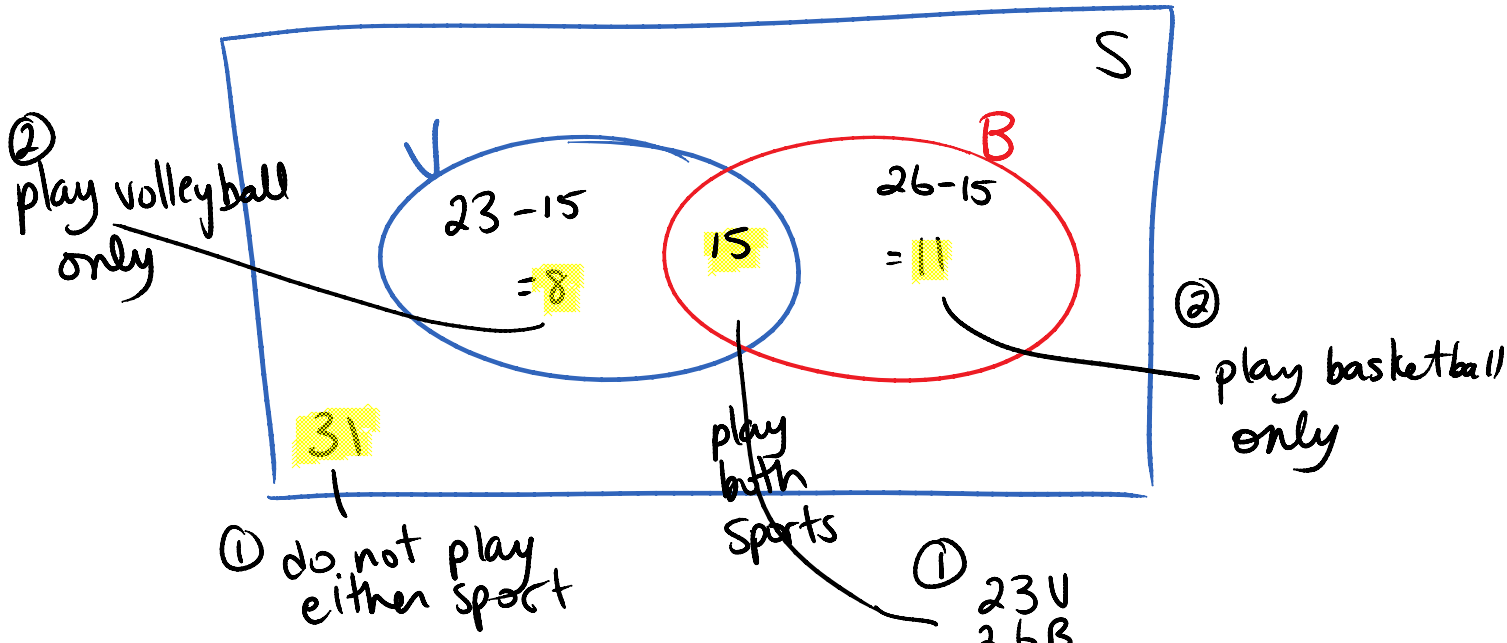


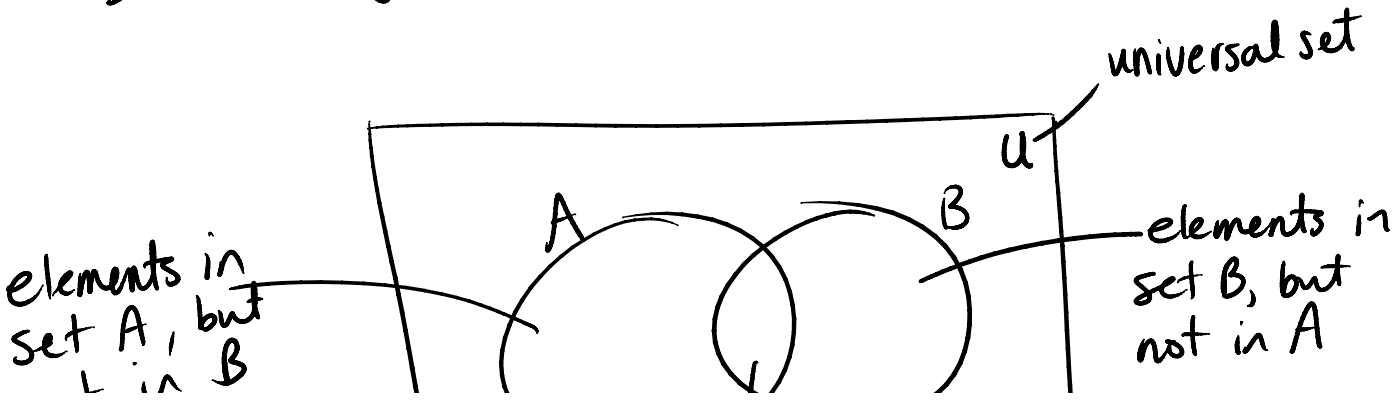
① 23 V
26 B
31 neither
80

but only 65 students
so 80 − 65 = 15
↑
play 2 sports

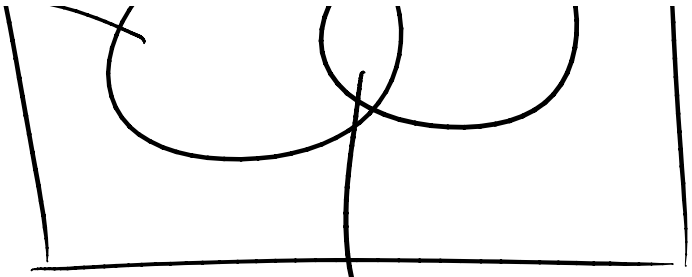
Check
Total students:

31
8
15
+11
65

☆ Venn Diagram Summary



set A, but not in B



not in A

elements that are in both sets
→ the overlap
→ the intersection

- Each element appears only once in a Venn Diagram; if it is in more than one set then it is placed in the overlapping area of the sets.

⁂ Practice pg 160 #1-5