

TOPIC: SET APPLICATIONS: SURVEY PROBLEMS

Intro to Survey Problems

- ◆ Survey results can be displayed in a Venn Diagram, showing the _____ in each set.
- ▶ To find how many participants are in a particular group, _____ the # of responses in each relevant region.

New

Venn Diagrams of Survey Results

(A) How many participants enjoy both **running** and **cycling**?

(B) How many participants enjoy **running**?

(C) How many **total** participants were there?

Exercise Preferences

A Venn diagram with two overlapping circles. The left circle is green and labeled 'Running' with the number 26 inside. The right circle is blue and labeled 'Cycling' with the number 18 inside. The intersection of the two circles is shaded and contains the number 20. The entire diagram is enclosed in a rectangle labeled 'U' in the top left corner and '16' in the bottom right corner.

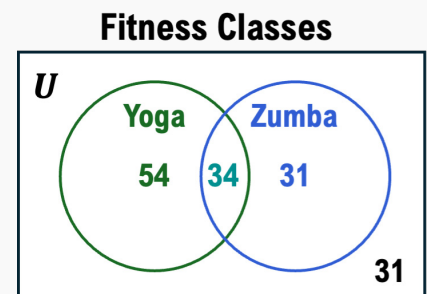
PRACTICE

A fitness center surveyed its members about which classes they attend. Use the Venn diagram to answer the following questions.

(A) How many members attend Yoga classes?

(B) How many total members were surveyed?

(C) How many members attend at least one class?



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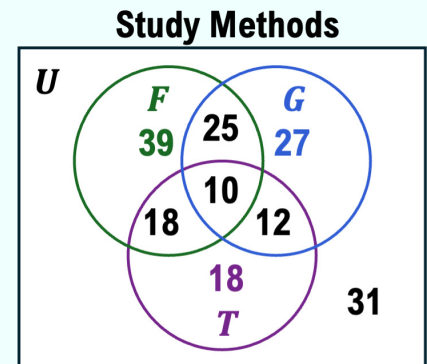
EXAMPLE

A survey of 180 college students asked whether they use flashcards (F), study groups (G), or tutoring (T). Use the Venn diagram to answer the following questions.

(A) How many students use flashcards?

(B) How many students use study groups and tutoring?

(C) How many students use at least 2 study methods?



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Creating Venn Diagrams for Survey Problems

◆ For some survey problems, you will need to create the Venn diagram from the given information.

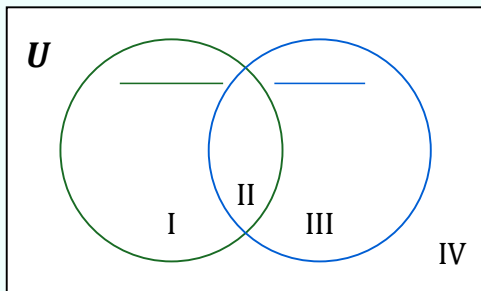
EXAMPLE

A survey of 150 students asked whether they read fiction and/or non-fiction books. 95 students read fiction, 70 students read non-fiction, and 32 students read both. Create a Venn Diagram to represent this data.

1) U = set of all _____

_____ = set of students who read _____

_____ = set of students who read _____



2) set of students who read _____ = _____

set of students who read _____ = _____

HOW TO: Make a V.D. from Survey Data

- 1) Define sets & draw Venn diagram
 - U = set of _____ responses
- 2) For each region (I, II, III, IV):
 - a) Find # of responses
 - Start with _____-most region
 - _____ to avoid counting twice
 - b) Label region on Venn diagram
- 3) Answer questions when necessary

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EXAMPLE

A marketing firm surveyed 320 small business owners about which advertising methods they used during the past year. 185 used social media advertising, 142 used email marketing, 76 used both.

(A) Make a Venn diagram to represent this data.

(B) How many business owners used only social media advertising?

(C) How many used at least one of the two advertising methods?

HOW TO: Make a V.D. from Survey Data

- 1) Define sets & draw Venn diagram
 - U = set of all responses
- 2) For each set:
 - a) Find # of responses
 - Start with inner-most region
 - Subtract to avoid counting twice
 - b) Label region on Venn diagram
- 3) Answer questions when necessary

EXAMPLE

A retail store tracked the purchases of the first 200 customers during a weekend promo involving 3 products: jackets, sneakers, & backpacks. Create a Venn diagram to represent the data.

# of Customers	Purchased
90	Jackets
75	Sneakers
60	Backpacks
30	Jackets & Sneakers
25	Jackets & Backpacks
20	Sneakers & Backpacks
12	All 3 items

