LESSON MAKER PRO

Study the Results

Use randomization and rates to make careful conclusions.

HIGH SCHOOL · MM.D3D.C.22

MM.D3D.C.22 "Conduct a randomized study on a topic of student interest (sample or experiment) and draw conclusions based upon the results."

NAME _____ DATE _____

COMPARE FAIRLY

A random sample helps you estimate what a larger group thinks. In an experiment, randomly assign people to groups, then compare the percent with the outcome in each group. Subtract the percents to find the difference in percentage points.

WORKED EXAMPLE

Students were randomly assigned to see a video or a poster for a school event. What was the difference in signup rates?

EVENT SIGNUPS

Group	Signed up	Total
Video	6	8
Poster	2	8

1. Video rate: 6/8 = 75%.
2. Poster rate: 2/8 = 25%.
3. Difference: 75% - 25% = 50 percentage points.

Answer: The video group's signup rate was 50 percentage points higher.

PRACTICE 4 problems

1 In a random sample of 10 students, 7 want a later lunch period. What percent of the sample wants it?

ANSWER _____

2 Students were randomly assigned to two study apps. On App A, 13 of 20 finished a task. On App B, 9 of 20 finished. What is the difference in finish rates?

ANSWER _____

3 Students were randomly assigned to two practice plans. With Plan A, 9 of 15 met a goal. With Plan B, 4 of 10 did. Which plan had the higher rate, and by how much?

ANSWER _____

_____

4 In a random sample of 20 students, 11 favor a new club. Based on the sample, about how many out of 100 students would favor it?

ANSWER _____

APPLY IT Show your work

1 A random sample of students at your school answered a poll about outdoor lunch seating. Estimate the percent of students at your school who want it. Can this sample estimate what students at every school want?

OUTDOOR LUNCH SEATING POLL

Answer	Students
Want it	28
Do not want it	12

ANSWER _____

2 A club randomly assigned students to try two versions of an event flyer. Which flyer had the higher signup rate, and by how many percentage points?

FLYER TEST

Flyer	Signed up	Total
A	27	30
B	18	30

ANSWER _____

CHALLENGE One step up

A club has 45 volunteers for a study of phone-free homework time. In a trial, 21 of 30 in the phone-free group and 9 of 15 in the regular group finished their homework. Find the rate difference. Describe how to randomly assign 45 volunteers to groups of those sizes, and give one limit on your conclusion.

WORK SPACE AND ANSWER

Study the Results

PART 1 · PRACTICE

#	PROBLEM	ANSWER
1	In a random sample of 10 students, 7 want a later lunch period. What percent of the sample wants it?	**70%**
2	Students were randomly assigned to two study apps. On App A, 13 of 20 finished a task. On App B, 9 of 20 finished. What is the difference in finish rates?	**20 percentage points**
3	Students were randomly assigned to two practice plans. With Plan A, 9 of 15 met a goal. With Plan B, 4 of 10 did. Which plan had the higher rate, and by how much?	**Plan A, by 20 percentage points**
4	In a random sample of 20 students, 11 favor a new club. Based on the sample, about how many out of 100 students would favor it?	**55 students**

PART 2 · APPLY IT

1. **About 70% at this school. No, the sample was drawn only from this school.** There were 40 responses, and 28/40 = 70%. A sample from one school does not represent every school.
2. **Flyer A, by 30 percentage points** The rates are 27/30 = 90% and 18/30 = 60%. Subtract to get 30 percentage points.

CHALLENGE

The phone-free rate is 70%, and the regular rate is 60%, a difference of 10 percentage points. Draw 30 names at random for the phone-free group; put the other 15 in the regular group. Because the students volunteered, the result may not apply to all students.

Accept equivalent random-assignment methods that produce groups of 30 and 15. For the challenge limit, also accept that the observed difference may be due to chance.