LESSON MAKER PRO

Claims Under Scrutiny

Compare rates before you judge a claim.

HIGH SCHOOL · S.IR.3

S.IR.3 "Evaluate real-world claims and conclusions. Evaluate strengths and weaknesses in the studies or methods used to generate data. Evaluate the statistical validity of claims made."

NAME _____ DATE _____

COMPARE FAIRLY

To compare groups, divide the number with an outcome by that group's total. Subtract the percentages to find the percentage-point gap. A gap does not prove what caused it, and a selected sample may not represent everyone.

WORKED EXAMPLE

Players chose whether to use a warm-up plan. How much higher was the rate of less soreness among plan users? Does the result prove the plan caused less soreness?

SORENESS AFTER PRACTICE

Group	Less soreness	Total
Used plan	7	10
Did not use plan	1	5

1. Plan users: 7/10 = 70%.
2. Nonusers: 1/5 = 20%.
3. 70% - 20% = 50 percentage points.
4. Players chose their groups, so the gap does not prove cause.

Answer: The rate was 50 percentage points higher for plan users. The result does not prove the plan caused less soreness.

PRACTICE 4 problems

1 Team A: 18 of 24 completed a course. Team B: 21 of 28. Which team had the higher completion rate?

ANSWER _____

2 At one school, 27 of 30 surveyed students support a policy. At another, 18 of 30 do. Find the percentage-point gap.

ANSWER _____

3 Students chose whether to study with music. Of those who did, 16 of 20 improved; without music, 9 of 20 improved. Find the percentage-point gap. Does it prove music caused improvement?

ANSWER _____

_____

4 In an opt-in poll, 24 of 30 respondents favor later classes. What percent favor them? Why might this not represent all students?

ANSWER _____

_____

APPLY IT Show your work

1 Students chose whether to use a study app. Compare quiz pass rates. Does the data support the claim that the app caused higher scores?

QUIZ RESULTS

Group	Passed	Total
App users	27	36
Nonusers	18	36

ANSWER _____

2 A post says, "80% of students want a phone-free lunch." What percent of surveyed students agree? Is the post's claim about the survey supported?

PHONE-FREE LUNCH SURVEY

Grade	Agree	Surveyed
9	16	20
12	9	30

ANSWER _____

CHALLENGE One step up

At School A, 16/20 tutored and 18/30 untutored students passed. At School B, 12/20 tutored and 24/40 untutored students passed. Is tutoring linked to a higher pass rate at both schools? Compare each school and the combined groups.

WORK SPACE AND ANSWER

Claims Under Scrutiny

PART 1 · PRACTICE

#	PROBLEM	ANSWER
1	Team A: 18 of 24 completed a course. Team B: 21 of 28. Which team had the higher completion rate?	**Neither. Both rates were 75%.**
2	At one school, 27 of 30 surveyed students support a policy. At another, 18 of 30 do. Find the percentage-point gap.	**30 percentage points.**
3	Students chose whether to study with music. Of those who did, 16 of 20 improved; without music, 9 of 20 improved. Find the percentage-point gap. Does it prove music caused improvement?	**35 percentage points. No, students chose whether to study with music.**
4	In an opt-in poll, 24 of 30 respondents favor later classes. What percent favor them? Why might this not represent all students?	**80%. Students who chose to respond may differ from other students.**

PART 2 · APPLY IT

1. **App users: 75%. Nonusers: 50%. The gap is 25 percentage points, but the data does not show that the app caused higher scores.** Divide passes by each group total. Because students chose whether to use the app, other differences between the groups could explain the gap.
2. **50% of surveyed students agree. No, the post's 80% claim is not supported by the full survey.** Add across grades: (16 + 9)/(20 + 30) = 25/50 = 50%. The post uses the Grade 9 rate instead of the rate for everyone surveyed.

CHALLENGE

No. At School A, the rates are 80% tutored and 60% untutored. At School B, both rates are 60%. Combined, the rates are 28/40 = 70% tutored and 42/70 = 60% untutored. The combined gap does not mean the rate is higher at both schools.

Accept equivalent fractions or decimals with correct comparisons. A percentage-point gap is not a percent increase.