LESSON MAKER PRO

Claim Check

Use confidence intervals to judge population claims.

HIGH SCHOOL · S.DA.5.5

S.DA.5.5 "Use confidence intervals to evaluate claims for a single population parameter."

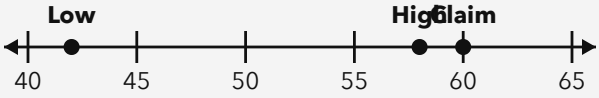
NAME _____ DATE _____

INSIDE OR OUTSIDE?

A confidence interval gives a range of plausible values for one population percent or mean. A claim at or inside the interval is plausible, but not proved. A claim outside the interval is not supported by it.

WORKED EXAMPLE

The number line shows a 90% confidence interval for a population percent and a claim. Is the claim plausible?



1. Read the interval: 42% to 58%.
2. The claimed 60% is outside the interval.

Answer: No. The interval does not support the claim.

PRACTICE 4 problems

1 A 95% confidence interval is 61% to 69%. Is a claim of 67% plausible? Explain.

ANSWER _____

2 A 95% confidence interval is 12 to 18 minutes. Is a claim of 20 minutes plausible? Explain.

ANSWER _____

3 A 95% confidence interval is 22% to 28%. Is a claim of 22% plausible? Explain.

ANSWER _____

4 A 95% confidence interval is 7 to 13 minutes. Which claim is plausible, 9 or 15 minutes? Explain.

ANSWER _____

APPLY IT Show your work

1 A random survey estimates that 34% of students watch school sports streams, with a 95% margin of error of 4 percentage points. Is a club's claim of 39% plausible? Find the interval and explain.

WORK SPACE

ANSWER _____

2 An app estimates mean daily screen time at 108 minutes from a random sample, with a 95% margin of error of 6 minutes. Is its claim of 105 minutes plausible? Find the interval and explain.

WORK SPACE

ANSWER _____

CHALLENGE One step up

A school survey gives a 95% confidence interval of 47% to 53% for the share of students who want a later start time. Can you conclude that a majority wants it? Explain.

WORK SPACE AND ANSWER

ANSWER KEY

Claim Check

HIGH SCHOOL · S.DA.5.5

PART 1 · PRACTICE

#	PROBLEM	ANSWER
1	A 95% confidence interval is 61% to 69%. Is a claim of 67% plausible? Explain.	**Yes. 67% is inside the interval.**
2	A 95% confidence interval is 12 to 18 minutes. Is a claim of 20 minutes plausible? Explain.	**No. 20 minutes is outside the interval.**
3	A 95% confidence interval is 22% to 28%. Is a claim of 22% plausible? Explain.	**Yes. 22% is an endpoint of the interval.**
4	A 95% confidence interval is 7 to 13 minutes. Which claim is plausible, 9 or 15 minutes? Explain.	**9 minutes is plausible because it is inside the interval. 15 minutes is outside.**

PART 2 · APPLY IT

1. **The interval is 30% to 38%. No, 39% is outside it.** Subtract and add 4 percentage points to 34%. Compare 39% with the resulting interval.
2. **The interval is 102 to 114 minutes. Yes, 105 minutes is inside it.** Subtract and add 6 minutes to 108 minutes. Compare 105 minutes with the resulting interval.

CHALLENGE

No. The interval includes 50%, so it does not rule out a population share that is not a majority.

Accept equivalent wording that compares each claim with the interval. An inside claim is plausible, not certain; an outside claim is not supported by the interval.