

Math Claim Detectives

Use math evidence to test each claim.

GRADE 4 • 4.MP.3

4.MP.3 "Construct viable arguments and critique the reasoning of others."

NAME _____

DATE _____

PROVE IT WITH MATH

A math claim needs evidence. Solve the problem, show a matching equation or check, then explain whether the claim makes sense. If a claim is wrong, point to the step that needs to change.

WORKED EXAMPLE

A game club puts 12 cards in each of 11 prize bags. Jordan says there are 122 cards. Is Jordan correct?

1. Write an equation: 11×12 .
2. Break apart 12: $11 \times 10 = 110$ and $11 \times 2 = 22$.
3. Add: $110 + 22 = 132$.
4. Compare 132 to Jordan's claim of 122.

Answer: Jordan is not correct. There are 132 cards, because $11 \times 12 = 132$.

PRACTICE 6 problems

- 1** Four garden rows have 15 tomato plants in each row. Ava says there are 19 plants because $4 + 15 = 19$. Is Ava correct? Explain with an equation.

ANSWER _____

- 2** A coach shares 96 trading cards equally among 4 players. Kai says each player gets 92 cards because $96 - 4 = 92$. Is Kai correct? Explain.

ANSWER _____

- 3** Five cartons hold 18 colored pencils each. Rosa says there are 80 pencils. Is Rosa correct? Show how you know.

ANSWER _____

- 4** A classroom has 63 books to place in stacks of 9. Omar says the books will make 6 full stacks because $9 \times 6 = 54$. Is Omar correct? Explain.

ANSWER _____

- 5** A video game event lasts 240 minutes. The first round lasts 75 minutes, and the second round lasts 85 minutes. Mei says 80 minutes are left. Is Mei correct? Show a check.

ANSWER _____

- 6** At a pizza party, $\frac{2}{5}$ of a pizza is eaten at lunch and $\frac{1}{5}$ is eaten after school. Ben says $\frac{3}{10}$ of the pizza is eaten. Is Ben correct? Explain.

ANSWER _____

APPLY IT Show your work

- 1** The school store has 168 stickers to put equally into 6 prize envelopes. Talia says each envelope will have 30 stickers because $6 \times 30 = 180$. Is Talia correct? Find the number of stickers in each envelope and explain why.

WORK SPACE

ANSWER _____

- 2** At a school concert, 23 families buy a program for \$4 each. Diego says the school collects \$84. Is Diego correct? Use a break-apart method to explain.

WORK SPACE

ANSWER _____

CHALLENGE One step up

CHALLENGE

The art club shares 275 beads equally among 8 teams. Priya says each team gets 34 beads with 3 left over because $8 \times 34 = 272$. Mateo says each team gets 35 beads because $8 \times 35 = 280$. Who has a viable argument? Explain why the other argument does not work.

PART 1 • PRACTICE

#	PROBLEM	ANSWER
1	Four garden rows have 15 tomato plants in each row. Ava says there are 19 plants because $4 + 15 = 19$. Is Ava correct? Explain with an equation.	Ava is not correct. $4 \times 15 = 60$, so there are 60 tomato plants.
2	A coach shares 96 trading cards equally among 4 players. Kai says each player gets 92 cards because $96 - 4 = 92$. Is Kai correct? Explain.	Kai is not correct. $96 / 4 = 24$, so each player gets 24 cards.
3	Five cartons hold 18 colored pencils each. Rosa says there are 80 pencils. Is Rosa correct? Show how you know.	Rosa is not correct. $5 \times 18 = 90$, so there are 90 colored pencils.
4	A classroom has 63 books to place in stacks of 9. Omar says the books will make 6 full stacks because $9 \times 6 = 54$. Is Omar correct? Explain.	Omar is not correct. $63 / 9 = 7$, so the books make 7 full stacks.
5	A video game event lasts 240 minutes. The first round lasts 75 minutes, and the second round lasts 85 minutes. Mei says 80 minutes are left. Is Mei correct? Show a check.	Mei is correct. $75 + 85 = 160$, and $240 - 160 = 80$ minutes left.
6	At a pizza party, $2/5$ of a pizza is eaten at lunch and $1/5$ is eaten after school. Ben says $3/10$ of the pizza is eaten. Is Ben correct? Explain.	Ben is not correct. $2/5 + 1/5 = 3/5$, because the fifths are added and the denominator stays 5.

PART 2 • APPLY IT

- Talia is not correct. Each envelope has 28 stickers.** Since $6 \times 30 = 180$, Talia's amount is too high. $168 / 6 = 28$, and $6 \times 28 = 168$.
- Diego is not correct. The school collects \$92.** Break 23 into 20 and 3. Then $20 \times 4 = 80$ and $3 \times 4 = 12$, so $80 + 12 = 92$.

CHALLENGE

Priya has a viable argument. $8 \times 34 = 272$, and $275 - 272 = 3$, so each team gets 34 beads with 3 left over. Mateo's claim does not work because $8 \times 35 = 280$, which is more than 275.

Accept equivalent equations, words, or drawings that correctly support the conclusion. Students should name whether the claim is correct and use accurate math evidence, including a check when requested.