

Math Claim Detectives

Use evidence to prove or question a solution.

GRADE 6 • 6.MP.3

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

NAME _____

DATE _____

BUILD AND CHECK ARGUMENTS

A strong math argument shows the calculation and explains why it fits the situation. To critique a claim, check each step, find any error, and state the correct conclusion with evidence.

WORKED EXAMPLE

A community garden has 5 trays with 23 seedlings in each tray. Elena says there are 105 seedlings. Is Elena correct?

1. Break 23 into $20 + 3$.
2. Multiply: $5 \times 20 = 100$ and $5 \times 3 = 15$.
3. Add: $100 + 15 = 115$.
4. Elena's total does not match 115.

Answer: No. There are 115 seedlings.

PRACTICE 6 problems

- 1** A snack booth packs 4 boxes with 18 pretzels in each box. Liam says there are 62 pretzels because $4 \times 10 = 40$ and $4 \times 8 = 22$. Is Liam correct? Explain.

ANSWER _____

- 2** A club shares 96 stickers equally among 8 teams. Maya says each team gets 11 stickers because $8 \times 11 = 88$. Critique Maya's reasoning.

ANSWER _____

- 3** A runner completes 14 laps that are each $\frac{2}{7}$ mile long. Rosa says the runner traveled 4 miles. Is Rosa's claim viable? Show why.

ANSWER _____

- 4** A cooking club uses $\frac{4}{9}$ cup of juice in each of 9 batches. Theo says the club used $\frac{4}{81}$ cup because he multiplied the denominators. Is Theo correct? Explain.

ANSWER _____

- 5** A video club has 48 minutes to divide equally among 6 short videos. Omar says each video can be 7 minutes long. Is his answer correct? Defend your decision.

ANSWER _____

- 6** A student buys 6 notebooks that cost \$4 each and uses one \$2 coupon on the whole purchase. Nia says the total is \$12 because the coupon takes \$2 off each notebook. Critique Nia's claim.

ANSWER _____

APPLY IT Show your work

- 1** At a school esports event, a club has \$84 for prizes. The club buys 6 prizes that cost \$9 each, then splits the money left equally among 4 winners. A student says each winner gets \$7. Is the student correct? Show an argument that supports your answer.

WORK SPACE

ANSWER _____

- 2** A card game group opens 4 packs with 24 cards in each pack. The group gives 18 cards to volunteers, then shares the remaining cards equally among 6 players. Mina says each player gets 10 cards. Is Mina correct? Explain using calculations.

WORK SPACE

ANSWER _____

CHALLENGE One step up

CHALLENGE

A tablet needs space for 14 downloaded episodes. Each episode uses $\frac{4}{7}$ GB. The tablet already has $1\frac{1}{2}$ GB of free space. Kai says the user must clear 8 GB, while Noor says the user must clear $6\frac{1}{2}$ GB. Whose argument is correct? Explain why the other argument is incomplete.

PART 1 • PRACTICE

#	PROBLEM	ANSWER
1	A snack booth packs 4 boxes with 18 pretzels in each box. Liam says there are 62 pretzels because $4 \times 10 = 40$ and $4 \times 8 = 22$. Is Liam correct? Explain.	No. $4 \times 8 = 32$, so $4 \times 18 = 40 + 32 = 72$ pretzels.
2	A club shares 96 stickers equally among 8 teams. Maya says each team gets 11 stickers because $8 \times 11 = 88$. Critique Maya's reasoning.	Maya is not correct. Since $96 \div 8 = 12$, each team gets 12 stickers. Her multiplication only accounts for 88 stickers.
3	A runner completes 14 laps that are each $\frac{2}{7}$ mile long. Rosa says the runner traveled 4 miles. Is Rosa's claim viable? Show why.	Yes. $14 \times \frac{2}{7} = \frac{28}{7} = 4$, so the runner traveled 4 miles.
4	A cooking club uses $\frac{4}{9}$ cup of juice in each of 9 batches. Theo says the club used $\frac{4}{81}$ cup because he multiplied the denominators. Is Theo correct? Explain.	No. $\frac{4}{9} \times 9 = 4$ cups because the 9 batches cancel the denominator of 9.
5	A video club has 48 minutes to divide equally among 6 short videos. Omar says each video can be 7 minutes long. Is his answer correct? Defend your decision.	No. $48 \div 6 = 8$, so each video can be 8 minutes long. Six videos of 7 minutes use only 42 minutes.
6	A student buys 6 notebooks that cost \$4 each and uses one \$2 coupon on the whole purchase. Nia says the total is \$12 because the coupon takes \$2 off each notebook. Critique Nia's claim.	Nia is not correct. The notebooks cost $6 \times \\$4 = \\24, and one \$2 coupon makes the total \$22.

PART 2 • APPLY IT

- No. Each winner gets \$7.50.** The prizes cost $6 \times \$9 = \54 , leaving $\$84 - \$54 = \$30$. Then $\$30 \div 4 = \7.50 .
- No. Each player gets 13 cards.** There are $4 \times 24 = 96$ cards at first. After giving away 18, 78 remain, and $78 \div 6 = 13$.

CHALLENGE

Noor is correct. The episodes need $14 \times \frac{4}{7} = 8$ GB total, but $1 \frac{1}{2}$ GB is already free, so the user must clear $6 \frac{1}{2}$ GB. Kai did not subtract the free space.

Accept equivalent calculations and clear verbal explanations that identify the relevant error or confirm why the claim works. Accept 6.5 GB for $6 \frac{1}{2}$ GB and \$7.50 for seven dollars and fifty cents.