LESSON MAKER PRO

# Quantities Make Sense

*Use units, equations, and estimates.*

**GRADE 4 · 4.MP.2**

**4.MP.2** "Reason abstractly and quantitatively."

NAME _____ DATE _____

### KEEP NUMBERS MEANINGFUL

Decide what the numbers describe before you calculate. Write an equation, label your answer with a unit, and use an estimate or a related fact to check whether your answer makes sense.

### WORKED EXAMPLE

A museum has 24 postcards. It puts 6 postcards in each packet. How many packets does it make?

1. The total is 24 postcards, with 6 postcards in each packet.
2. Divide: 24 / 6 = 4.
3. Check: 6 * 4 = 24.

**Answer: 4 packets**

## PRACTICE 6 problems

**1** The library has 35 new books. It puts 5 books on each display shelf. How many shelves does it use? Write a division equation. Then check by multiplying.

**ANSWER** _____

**2** At a game event, 8 players each earn 12 tokens. How many tokens do they earn altogether? Estimate first, then write a multiplication equation.

**ANSWER** _____

**3** A pet shelter shares 63 cans of food equally among 9 cats. How many cans does each cat get? Write an equation and a multiplication check.

**ANSWER** _____

**4** A coach puts 72 grapes equally into 8 snack cups. How many grapes are in each cup? Explain why your answer is reasonable using a related multiplication fact.

**ANSWER** _____

**5** Each skate pass costs $3. Jalen buys 14 skate passes for his group. How much does he spend? Use an estimate to check your total.

**ANSWER** _____

**6** A craft club uses 96 beads to make bracelets. Each bracelet needs 12 beads. How many bracelets can the club make? Write a division equation and check it.

**ANSWER** _____

## APPLY IT Show your work

**1** The robotics club has 218 batteries. It needs 291 batteries for its robots. How many more batteries does the club need? Show a subtraction equation, then use an estimate to tell why your answer is reasonable.

WORK SPACE

**ANSWER** _____

**2** At a school concert, 11 rows hold 13 chairs each. Then 26 more chairs are set beside the rows. How many chairs are ready for the audience? Write equations for both steps and estimate to check your answer.

WORK SPACE

**ANSWER** _____

## CHALLENGE One step up

Maya says that 312 - 158 is about 200 because 300 - 100 = 200. Is her estimate reasonable? Find the exact difference and explain with a better estimate.

WORK SPACE AND ANSWER

ANSWER KEY

# Quantities Make Sense

GRADE 4 · 4.MP.2

## PART 1 · PRACTICE

| # | PROBLEM | ANSWER |
|---|---|---|
| 1 | The library has 35 new books. It puts 5 books on each display shelf. How many shelves does it use? Write a division equation. Then check by multiplying. | **7 shelves; 35 / 5 = 7, and 7 * 5 = 35.** |
| 2 | At a game event, 8 players each earn 12 tokens. How many tokens do they earn altogether? Estimate first, then write a multiplication equation. | **96 tokens; estimate: 8 * 10 = 80, so 96 is reasonable. Equation: 8 * 12 = 96.** |
| 3 | A pet shelter shares 63 cans of food equally among 9 cats. How many cans does each cat get? Write an equation and a multiplication check. | **7 cans per cat; 63 / 9 = 7, and 9 * 7 = 63.** |
| 4 | A coach puts 72 grapes equally into 8 snack cups. How many grapes are in each cup? Explain why your answer is reasonable using a related multiplication fact. | **9 grapes per cup; 72 / 8 = 9, and 8 * 9 = 72.** |
| 5 | Each skate pass costs $3. Jalen buys 14 skate passes for his group. How much does he spend? Use an estimate to check your total. | **$42; 14 * 3 = 42. An estimate of 15 * 3 = 45 shows $42 is reasonable.** |
| 6 | A craft club uses 96 beads to make bracelets. Each bracelet needs 12 beads. How many bracelets can the club make? Write a division equation and check it. | **8 bracelets; 96 / 12 = 8, and 12 * 8 = 96.** |

## PART 2 · APPLY IT

1. **73 batteries** 291 - 218 = 73. An estimate is 290 - 220 = 70, so 73 more batteries is reasonable; 218 + 73 = 291 also checks the answer exactly.
2. **169 chairs** 11 * 13 = 143, and 143 + 26 = 169. Estimating 10 * 15 = 150 and then 150 + 30 = 180 shows that 169 is reasonable.

## CHALLENGE

**312 - 158 = 154. Rounding to tens gives 310 - 160 = 150, so 154 is reasonable, not 200.**

Accept multiplication equations written in either factor order and equivalent, sensible estimate checks. For the robotics problem, the response must state why 73 is reasonable, such as 290 - 220 is about 70, and may also check by addition.