

Group Plan Power

Use patterns to solve equal-group stories.

GRADES K-12 • MA.K12.MTR.5.1

MA.K12.MTR.5.1 "Use patterns and structure to help understand and connect mathematical concepts. Mathematicians who use patterns and structure to help understand and connect mathematical concepts: Focus on relevant details within a problem..."

NAME _____

DATE _____

PLAN WITH GROUPS

When you see equal groups, decide which parts are easy to find first. You can split the number of groups, double a smaller fact, or use a nearby fact and adjust. Add or subtract the parts, then check that your answer fits the story.

WORKED EXAMPLE

An art room has 7 tables with 6 paint cups on each table. How many paint cups are there?

1. Notice 7 equal groups of 6.
2. Split 7 into 5 and 2.
3. Find $5 \times 6 = 30$ and $2 \times 6 = 12$.
4. Add $30 + 12 = 42$.

Answer: 42 paint cups

PRACTICE 6 problems

- 1** A library has 4 shelves with 5 new comics on each shelf. Split the shelves into two equal parts to make a plan. How many new comics are there?

ANSWER _____

- 2** A coach puts 8 water bottles in each of 3 bins. Use 2 groups first, then add 1 more group. How many water bottles are there?

ANSWER _____

- 3** A collector buys 5 packs of 9 trading cards. Split 9 into 5 and 4 to solve. How many trading cards does the collector buy?

ANSWER _____

- 4** A teacher has 2 boxes with 12 mini erasers in each box. Use repeated addition to plan. How many mini erasers are there?

ANSWER _____

- 5** A cafeteria sets 4 name tags on each of 8 tables. Double the number of tags for 4 tables to solve. How many name tags are needed?

ANSWER _____

- 6** A field day has 9 teams with 5 flags for each team. Use 10 groups, then take away 1 group. How many flags are needed?

ANSWER _____

APPLY IT Show your work

- 1** A video game club has 4 groups. Each group earns 5 tickets in each of 3 rounds. The club pools all the tickets. How many tickets does the club have?

WORK SPACE

ANSWER _____

- 2** A pet shelter fills 8 bowls with 4 treats in each bowl. Volunteers give 5 treats to a puppy during training. How many treats are left in the bowls?

WORK SPACE

ANSWER _____

CHALLENGE One step up

CHALLENGE

For a school carnival, 9 game booths give 8 prize tokens each. Kai uses $10 \times 8 - 8$ to solve. Explain why Kai's plan works, then find the total number of tokens.

PART 1 • PRACTICE

#	PROBLEM	ANSWER
1	A library has 4 shelves with 5 new comics on each shelf. Split the shelves into two equal parts to make a plan. How many new comics are there?	20 comics, because $2 \times 5 + 2 \times 5 = 10 + 10 = 20$.
2	A coach puts 8 water bottles in each of 3 bins. Use 2 groups first, then add 1 more group. How many water bottles are there?	24 water bottles, because $2 \times 8 + 1 \times 8 = 16 + 8 = 24$.
3	A collector buys 5 packs of 9 trading cards. Split 9 into 5 and 4 to solve. How many trading cards does the collector buy?	45 trading cards, because $5 \times 5 + 5 \times 4 = 25 + 20 = 45$.
4	A teacher has 2 boxes with 12 mini erasers in each box. Use repeated addition to plan. How many mini erasers are there?	24 mini erasers, because $12 + 12 = 24$.
5	A cafeteria sets 4 name tags on each of 8 tables. Double the number of tags for 4 tables to solve. How many name tags are needed?	32 name tags, because $4 \times 4 = 16$ and $16 + 16 = 32$.
6	A field day has 9 teams with 5 flags for each team. Use 10 groups, then take away 1 group. How many flags are needed?	45 flags, because $10 \times 5 - 5 = 50 - 5 = 45$.

PART 2 • APPLY IT

- 60 tickets** Find the tickets earned by one group in 3 rounds, $5 \times 3 = 15$. Then find $4 \times 15 = 60$.
- 27 treats** First find the treats in all the bowls, $8 \times 4 = 32$. Then subtract the 5 treats given to the puppy, $32 - 5 = 27$.

CHALLENGE

72 tokens. Ten groups of 8 would be 80, and subtracting one group of 8 leaves 9 groups of 8.

Accept any correct equation, drawing description, or clear strategy that matches the equal groups in each story. For the challenge, students should explain that one extra group is found first and then removed.