LESSON MAKER PRO

Groups and Leftovers

Solve problems in steps and decide what remainders mean.

GRADE 4 · 4.OA.3a

4.OA.3a "Solve multi-step word problems posed with whole numbers, including problems in which remainders must be interpreted. Represent these problems using equations with a letter standing for the unknown quantity."

NAME _____ DATE _____

WHAT DOES THE REMAINDER MEAN?

For each problem, write an equation with ___ for the answer, then solve it. When you divide, decide whether the remainder means you need another group, have items left over, or can make only full groups.

WORKED EXAMPLE

A club has 43 players. Another 14 players join. Each van holds 8 players. How many vans are needed to take everyone?

1. 43 + 14 = 57 players
2. 57 = 8 × 7 + 1
3. Seven vans are full, and one player needs a seat in another van.
4. ___ = 7 + 1

Answer: 8 vans

PRACTICE 6 problems

1 You have 31 red beads and 22 blue beads. Each bracelet needs 9 beads. How many complete bracelets can you make?

ANSWER _____

2 You have 74 stickers and give away 19. Each page can hold up to 6 stickers. How many pages do you need for the stickers you have left?

ANSWER _____

3 Four teams each collect 16 game cards. They trade away 9 cards, then make packs of 6 with the rest. How many full packs can they make?

ANSWER _____

4 A library has 85 books. Students check out 23 of them. Each shelf holds 10 books. How many shelves can the library fill completely with the remaining books?

ANSWER _____

5 You earn 49 tickets in the morning and 26 in the afternoon. Each prize costs 12 tickets. How many prizes can you get, and how many tickets will be left?

ANSWER _____

6 Four friends each bring 18 crayons. They give 13 crayons to another class. Each box holds up to 10 crayons. How many boxes are needed for the crayons they have left?

ANSWER _____

APPLY IT Show your work

1 At school game night, 38 players sign up, and 29 more arrive. Six players can play at each table. How many tables are needed so everyone can play? Write an equation with ___ for the answer.

WORK SPACE

ANSWER _____

2 A craft club has 95 pom-poms. Members use 17 to decorate a poster. Each keychain takes 7 pom-poms. How many keychains can they make, and how many pom-poms will remain? Write an equation with ___ for the number of keychains.

WORK SPACE

ANSWER _____

CHALLENGE One step up

Four classes have 24 students each. On game day, 13 students are absent. Each team needs 5 students. How many full teams can play, and how many students cannot join a full team? Write an equation with ___ for the number of full teams. Explain why the remaining students cannot form another team.

WORK SPACE AND ANSWER

ANSWER KEY

Groups and Leftovers

GRADE 4 · 4.OA.3a

PART 1 · PRACTICE

#	PROBLEM	ANSWER
1	You have 31 red beads and 22 blue beads. Each bracelet needs 9 beads. How many complete bracelets can you make?	**31 + 22 = 9 × ___ + 8; ___ = 5. You can make 5 complete bracelets.**
2	You have 74 stickers and give away 19. Each page can hold up to 6 stickers. How many pages do you need for the stickers you have left?	**74 - 19 = 6 × 9 + 1; ___ = 9 + 1. You need 10 pages.**
3	Four teams each collect 16 game cards. They trade away 9 cards, then make packs of 6 with the rest. How many full packs can they make?	**4 × 16 - 9 = 6 × ___ + 1; ___ = 9. They can make 9 full packs.**
4	A library has 85 books. Students check out 23 of them. Each shelf holds 10 books. How many shelves can the library fill completely with the remaining books?	**85 - 23 = 10 × ___ + 2; ___ = 6. The library can fill 6 shelves completely.**
5	You earn 49 tickets in the morning and 26 in the afternoon. Each prize costs 12 tickets. How many prizes can you get, and how many tickets will be left?	**49 + 26 = 12 × ___ + 3; ___ = 6. You can get 6 prizes and have 3 tickets left.**
6	Four friends each bring 18 crayons. They give 13 crayons to another class. Each box holds up to 10 crayons. How many boxes are needed for the crayons they have left?	**4 × 18 - 13 = 10 × 5 + 9; ___ = 5 + 1. They need 6 boxes.**

PART 2 · APPLY IT

1. **38 + 29 = 6 × 11 + 1; ___ = 11 + 1. They need 12 tables.** There are 67 players. Eleven tables seat 66 players, so one more table is needed.
2. **95 - 17 = 7 × ___ + 1; ___ = 11. They can make 11 keychains, with 1 pom-pom left.** After decorating the poster, the club has 78 pom-poms. Eleven groups of 7 use 77 pom-poms, leaving 1.

CHALLENGE

4 × 24 - 13 = 5 × ___ + 3; ___ = 16. Sixteen full teams can play, with 3 students left. Three students are fewer than the 5 needed for another full team.

Accept equivalent equations that use ___ for the unknown and show the correct answer. Check that students use remainders to answer the question, rather than always rounding the quotient the same way.