## Student Guide

### Solving Problems with Multiplication and Division (SG pp. 373–375) Questions 1–17

Solution strategies will vary.

1.* $12 \times 6 = 72$ boxes

2. $200 \div 50 = 4$ bags

3. $200 \div 5 = 40$ marbles

4. $7 \times \$1.50 = \$10.50$

5. One-half dozen is 6 cupcakes; $48 \div 6 = 8$ boxes

6. $\$3.00 \div 5 = \$.60$

7. Answers may vary. For example, in Question 2, students could write either $50 \times 4 = 200$ or $200 \div 50 = 4$. See Questions 1–6 for possible sentences.

8.* 5 buses

9.* 3 pencils

10.* 5 plus $\frac{1}{4}$ of the extra pizza

11.* Three groups had six students and one group had five students.

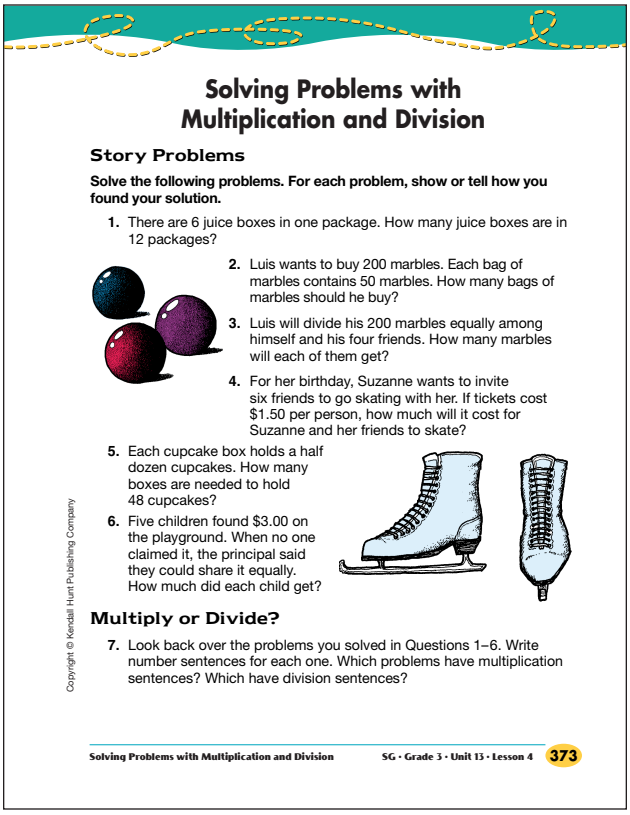
12. Answers will vary according to the stories written. One possible response is given for each problem.

Check to see that students treat the remainders in ways that match their stories.

**A.** 26 children want to ride the roller coaster. 5 children can ride in each car. How many cars will they need? 6 cars; $26 \div 5 = 5$ R1. They can fill 5 cars but will need 1 more for the last student.

**B.** Mark has 75 marbles. He put 10 marbles in each bag. How many full bags will he have? $75 \div 10 = 7$ R5. He will have 7 full bags.

**C.** Julie had 140 pennies. She divided them with her sister. How many pennies will they each get? $140 \div 2 = 70$ pennies each.



Solving Problems with Multiplication and Division

Story Problems

Solve the following problems. For each problem, show or tell how you found your solution.

1. There are 6 juice boxes in one package. How many juice boxes are in 12 packages?
2. Luis wants to buy 200 marbles. Each bag of marbles contains 50 marbles. How many bags of marbles should he buy?
3. Luis will divide his 200 marbles equally among himself and his four friends. How many marbles will each of them get?
4. For her birthday, Suzanne wants to invite six friends to go skating with her. If tickets cost $1.50 per person, how much will it cost for Suzanne and her friends to skate?
5. Each cupcake box holds a half dozen cupcakes. How many boxes are needed to hold 48 cupcakes?
6. Five children found $3.00 on the playground. When no one claimed it, the principal said they could share it equally. How much did each child get?

Multiply or Divide?

7. Look back over the problems you solved in Questions 1–6. Write number sentences for each one. Which problems have multiplication sentences? Which have division sentences?



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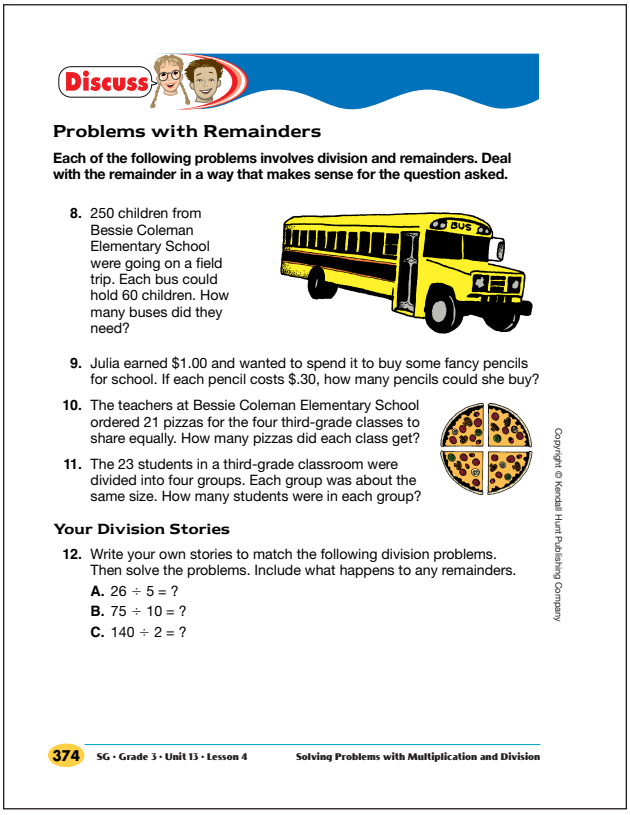

Discuss

Problems with Remainders

Each of the following problems involves division and remainders. Deal with the remainder in a way that makes sense for the question asked.

8. 250 children from Bessie Coleman Elementary School were going on a field trip. Each bus could hold 60 children. How many buses did they need?
9. Julia earned $1.00 and wanted to spend it to buy some fancy pencils for school. If each pencil costs $.30, how many pencils could she buy?
10. The teachers at Bessie Coleman Elementary School ordered 21 pizzas for the four third-grade classes to share equally. How many pizzas did each class get?
11. The 23 students in a third-grade classroom were divided into four groups. Each group was about the same size. How many students were in each group?

Your Division Stories

12. Write your own stories to match the following division problems. Then solve the problems. Include what happens to any remainders.
    - **A.** $26 \div 5 = ?$
    - **B.** $75 \div 10 = ?$
    - **C.** $140 \div 2 = ?$



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*Answers and/or discussion are included in the lesson.

✓ Check-In: Questions 13-17

**The Bake Sale**

**Ms. Alfonso's class is planning a bake sale. Help the students plan for it by solving the following problems. Some solutions might involve both multiplication and division.**


**13.** Carla can make 3 dozen cupcakes for the bake sale. If she puts four cupcakes in each bag, how many bags of cupcakes will she have?

**14.** The class plans to buy cans of frozen lemonade. Each can makes 64 oz. of lemonade. If they buy four cans, how many 6-oz. cups can be filled?

**15.** Frank is going to make 64 brownies for the bake sale. If he puts 4 brownies in each bag and each bag sells for $.50, how much money will they make selling Frank's brownies? Show or tell how you solved the problem.

**16.** Tara is going to make 90 crispy treats and divide them equally into 30 bags. The price for one bag of crispy treats is $.75.

**A.** How much does one crispy treat cost?

**B.** How much will they make if they sell all the crispy treats?

**17.** Josh and Sam can make 9 dozen cookies for the bake sale. Sam wants to put 5 cookies in each bag. Josh does not agree. He wants to put 6 cookies in each bag. Do you agree with Josh or Sam? Explain how you decided.





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**13.** 9 bags; Possible response: There are 12 in each dozen, so 3 dozen cupcakes equals $12 + 12 + 12 = 36$ cupcakes. I know that Carla will need 3 bags for each dozen because $3 \times 4 = 12$. Since there are 3 dozen cupcakes in all, I multiplied $3 \times 3 = 9$ to find the number of bags.

**14.** 42 cups; Possible response: First I figured out how many cups of lemonade they could get from one can and found they could get 10 cups with 4 ounces left over. I drew a picture to show the cups for each can of lemonade and found that I could get 40 cups and have 16 ounces left over. I knew that two more cups would be 12 ounces, so that left a remainder of 4 ounces.

64 = 10 cups + 4 ounces left over
64 = 10 cups + 4 ounces left over
64 = 10 cups + 4 ounces left over
64 = 10 cups + 4 ounces left over
40 cups + 16 ounces left over

16 = 2 cups + 4 ounces left over

40 cups + 2 cups = 42 cups with 4 ounces left over

**15.** $8.00; Possible response: First I multiplied $4 \times 5 = 20$ to see how many brownies there are in 5 bags. I doubled that to find that there are 40 brownies in 10 bags. That left 24 brownies to put into bags. I added 5 more bags and found that there were 60 brownies in 15 bags. Since there are 4 brownies left, I can add one more bag for a total of 16 bags. If one bag is $.50, two bags is $1.00, 4 bags is $2.00, 8 bags is $4.00, and 16 bags is $8.00.

**16. A.** $.25

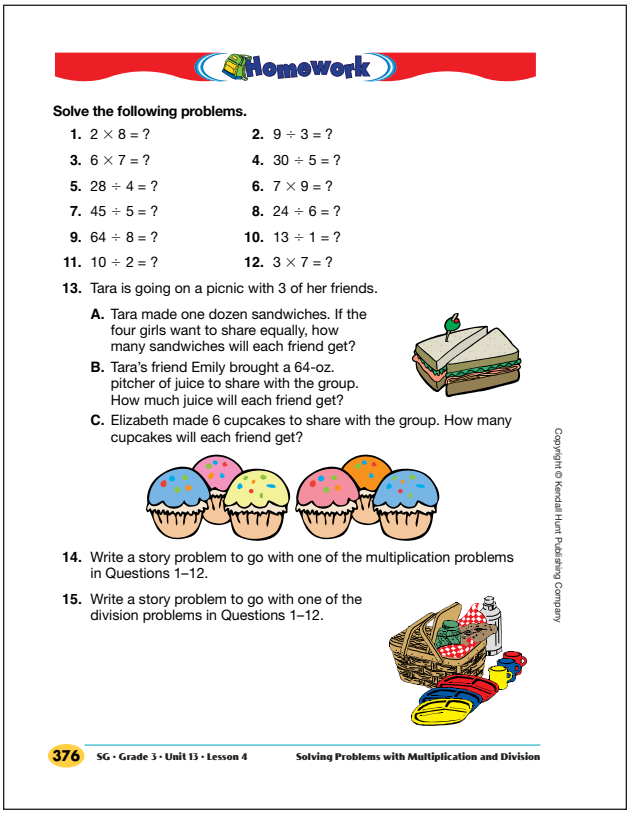
**B.** $22.50; Possible response: Since $9 \div 3 = 3$, there will also be three 30s in 90. If a bag of 3 crispy treats costs $.75 then one crispy treat will be $.25 since 3 quarters equals $.75. To find the total cost, first I added $.75 + $.75 + $.75 = $2.25 and then I multiplied $2.25 \times 10 = $22.50.

**17.** Possible response: I agree with Josh. There are 12 cookies in each dozen. First I multiplied $9 \times 12 = 9 \times 10 + 9 \times 2 = 90 + 18 = 108$ cookies in all. If you try to divide 108 cookies by putting 5 in each bag you will have 21 bags with 3 cookies left over; $108 \div 5 = 21$ R3, but if you divide them by putting 6 in each bag there will not be any left over; $108 \div 6 = 18$ bags of cookies.

## Homework (SG p. 376)

### Questions 1–15

1. 16
2. 3
3. 42
4. 6
5. 7
6. 63
7. 9
8. 4
9. 8
10. 13
11. 5
12. 21
13. **A.** $12 \div 4 = 3$ sandwiches per person
    **B.** $64 \div 4 = 16$ oz of juice per person
    **C.** $6 \div 4 = 1\frac{1}{2}$ cupcakes per person or 1 cupcake each and 2 left over
14. Answers will vary. Possible response for Question 1: There are 2 rows of chairs with 8 chairs in each row. How many chairs are there?
15. Answers will vary. Possible response for Question 5: There are 28 children to divide into 4 teams. How many children are on each team?



Homework

Solve the following problems.

1. 2 × 8 = ?
2. 9 ÷ 3 = ?
3. 6 × 7 = ?
4. 30 ÷ 5 = ?
5. 28 ÷ 4 = ?
6. 7 × 9 = ?
7. 45 ÷ 5 = ?
8. 24 ÷ 6 = ?
9. 64 ÷ 8 = ?
10. 13 ÷ 1 = ?
11. 10 ÷ 2 = ?
12. 3 × 7 = ?
13. Tara is going on a picnic with 3 of her friends.
    A. Tara made one dozen sandwiches. If the four girls want to share equally, how many sandwiches will each friend get?
    B. Tara's friend Emily brought a 64-oz. pitcher of juice to share with the group. How much juice will each friend get?
    C. Elizabeth made 6 cupcakes to share with the group. How many cupcakes will each friend get?
14. Write a story problem to go with one of the multiplication problems in Questions 1–12.
15. Write a story problem to go with one of the division problems in Questions 1–12.



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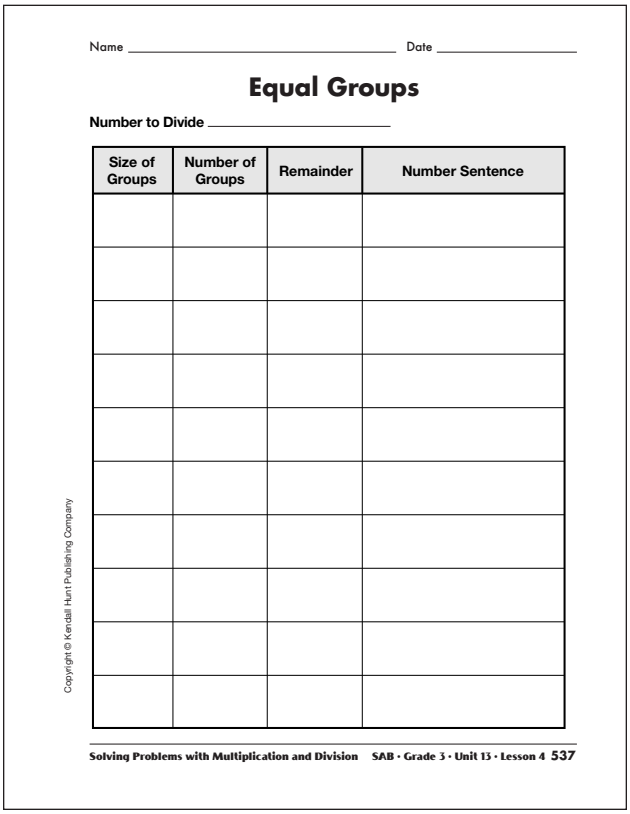
## Student Activity Book

### Equal Groups (SAB p. 537)

Answers will vary based on the number assigned. A sample table is provided.

Number to Divide 40

| Size of Groups | Number of Groups | Remainder | Number Sentence |
|---|---|---|---|
| 40 | 1 | 0 | 40 ÷ 1 = 40 |
| 5 | 8 | 0 | 40 ÷ 5 = 8 |
| 7 | 5 | 5 | 40 ÷ 7 = 5 R5 |
| 10 | 4 | 0 | 40 ÷ 10 = 4 |
| 3 | 13 | 1 | 40 ÷ 3 = 13 R1 |
| 6 | 6 | 4 | 40 ÷ 6 = 6 R4 |



Name _____ Date _____

Equal Groups

Number to Divide _____

| Size of Groups | Number of Groups | Remainder | Number Sentence |
|---|---|---|---|
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