

SOAR: Student Prompt Book

GRADES
3 and Up

Operations and Algebraic Thinking:
Multiplication and Division

STUDENT PROMPT BOOK

Operations and Algebraic Thinking: Multiplication and Division

Table of Contents

I. Approaches to Solving Multiplication and Division Situational Word Problems	1
1. Equal Group Multiplication, solving for an unknown product.....	3
2. Array/Area Multiplication, solving for an unknown product.....	4
3. Equal Group Division, solving for an unknown number of groups	5
4. Equal Group Measurement Division, solving for an unknown number of groups	6
5. Array/Area Division, solving for an unknown number of groups	7
6. Equal Group Division, solving for an unknown amount in each group.....	8
7. Equal Group Measurement Division, solving for an unknown amount in each group..	9
8. Array/Area Division, solving for an unknown amount in each group.....	10
9. Compare Multiplication, solving for an unknown product	11
10. Compare Measurement Division, solving for the unknown scalar factor	12
II. Interpreting Multiplication and Division Equations and Visual Models	13
11. Interpreting a Multiplication Equation to a Visual Model	15
12. Interpreting a Division Equation to a Visual Model	16
III. Approaches to Solving Multiplication and Division Situational Word Problems— One- and Two-Digit Factors	17
13. Array/Area Multiplication, solving for an unknown product.....	19
14. Equal Group Measurement Multiplication, solving for an unknown product.....	20
15. Equal Group Division, solving for an unknown number of groups	21
16. Array/Area Division, solving for an unknown amount in each group.....	22
17. Compare Multiplication, solving for an unknown product	23
18. Compare Multiplication, solving for an unknown product	24
19. Compare Measurement Division, solving for the unknown multiplier/scalar factor ..	25
20. Compare Measurement, solving for the unknown multiplier/scalar factor.....	26
21. Compare Measurement, solving for an unknown referent set, a factor	27

**Category I: Approaches to Solving
Multiplication and Division
Situational Word Problems**

1. Mary has 5 bags with 6 cookies in each bag. How many cookies does she have altogether?

2. The classroom has 6 rows of desks and each row has 7 desks. How many desks are in the classroom?

3. Jean has 18 pieces of candy. She wants to put 3 pieces of candy into each treat bag. If Jean wants to put all of her candy into treat bags, how many treat bags does Jean need?

4. Jean has 48 inches of rope. She cuts the entire rope into pieces that are 6 inches long. How many 6-inch pieces does she have?

5. Janice has 64 pieces of candy. She arranges them in a box with 8 pieces of candy per row. How many rows of candy will there be?

6. Jake has 24 stuffed animals. He puts an equal number of stuffed animals into each of 6 rooms in his house. How many stuffed animals go into each room?

7. Marshall is making wreath bows. He uses 45 inches of ribbon to make 5 bows that are the same size. How many inches of ribbon does he use for each of the bows?

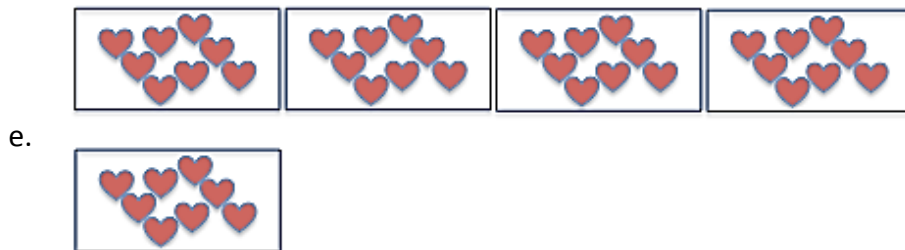
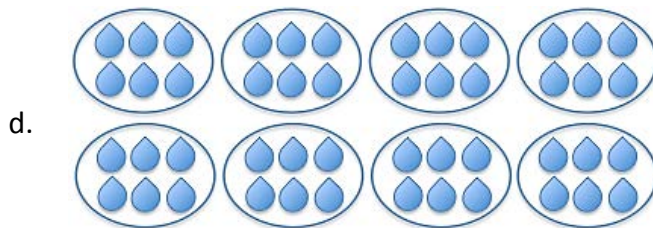
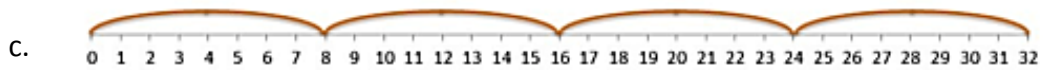
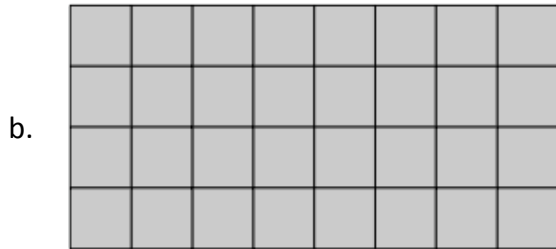
8. There are 32 cans of soup stacked into 4 columns. How many cans of soup are in each stacked column?

9. Sam has 12 pencils. Sam's brother has 3 times as many pencils as Sam. How many pencils does Sam's brother have altogether?

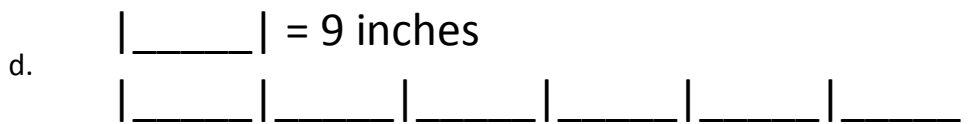
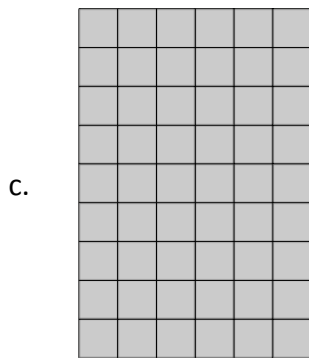
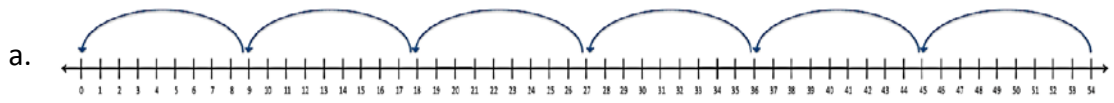
10. An un-stretched rubber band is 7 centimeters long. When it is stretched it is 49 centimeters long. How many times shorter is the rubber band when it is not stretched than when it is stretched?

**Category II: Interpreting
Multiplication and Division
Equations and Visual Models**

11. Select the model(s) for 4×8 ? How does each selected model show 4×8 ?



12. Select the model(s) for $54 \div 9$? How does each selected model show $54 \div 9$?



**Category III: Approaches to Solving
Multiplication and Division
Situational Word Problems—
One- and Two-Digit Factors**

13. The theater has 24 rows of seats. There are 9 seats in each row. How many seats are in the theater?

14. Lakeesha has 13 pieces of ribbon. Each ribbon is 18 inches in length. How many inches of ribbon does Lakeesha have altogether?

15. Deshawn puts 95 stamps into his stamp book. He puts 5 stamps onto each page. How many pages did he use for his 95 stamps?

16. Laurie has 168 pieces of candy. She arranges them on a tray into 12 rows. How many pieces of candy are in each row?

17. A sports video game costs \$58.00. A math video game costs 5 times as much as the sports video game costs. How much does the math video game cost?

18. John has 34 points in math. Jeanne has 6 times as many points than John. How many points does Jeanne have?

19. A trip from your house to the shopping center is 68 miles. A trip from your house to the movie is 17 miles. How many times further away is the shopping center than the movie theater from your house?

20. A sweater costs \$78.00 and a shirt costs \$13.00. How many times as much does the sweater cost than the shirt?

21. Fred has 261 baseball cards. Sam has 3 times fewer baseball cards than Fred does. How many baseball cards does Sam have?