Multiplication and Division in the Real World

Book B

This workbook belongs to

math & movement

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math materials, visit mathandmovement.com

Introduction

Welcome to *Multiplication and Division in the Real World*! This book connects the concepts of multiplication and division to everyday problems that students encounter in their daily lives. It also explains how to solve multiplication and division problems using a variety of strategies.

This book includes practice for the multiples of 7, 8, 9, 10, 11, and 12. For each multiple, students are introduced to skip counting, repeated addition, repeated subtraction, traditional multiplication questions, multiplication by a factor of 10, fact families, traditional division questions, mixed multiplication and division questions, real-world multiplication questions, and real-world division questions.

When we introduce mixed multiplication and division (real-world) questions, we do so in two parts. In the first set of questions, we ask the student to identify which operation (multiplication or division) needs to be employed to solve the problem and then to circle either multiply or divide. In the second set of questions, we ask the student to identify the operation and then solve the problem.

This book is organized in this manner because when students are first introduced to multiplication and division real-world problems, they tend to be confused about which operation to use.

At the conclusion of the book, there are 42 additional mixed multiplication and division real-world problems that offer a mix of all the multiples.

We hope you enjoy this book!

Suzy Koontz

Suzy Koontz
Math & Movement Founder and CEO

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Personal Progress Report Completion Stickers

I sailed the seas of multiplying by 7s

I divided by 7s with flying colors

I topped 7s practice problems

I topped 7s real world problems

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**Personal Progress Report
Completion Stickers**

Multiplying by 8s is
out of this world

I ate up
division by 8s

I prevailed over
8s practice
problems

I prevailed over
8s real world
problems

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Personal Progress Report Completion Stickers

Flew through multiplication by 9s

I hit a home run with division by 9s

I thrashed 9s practice problems

I thrashed 9s real world problems

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Personal Progress Report Completion Stickers

Rolled a strike with multiplication by 10s
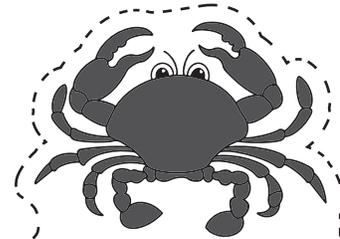
I can divide by 10s in a pinch

I triumphed over 10s practice problems

I triumphed over 10s real world problems

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Personal Progress Report Completion Stickers

Celebrating multiplying by 11s

Roared through division by 11s

I walloped 11s practice problems

I walloped 11s real world problems

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**Personal Progress Report
Completion Stickers**

A dozen treats for
multiplying by 12s
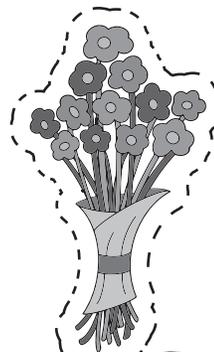
I can divide by 12s
beautifully

I dominated
12s practice
problems

I dominated
12s real world
problems

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Personal Progress Report Completion Stickers

I completed ALL of the Two-Step Problems

I completed ALL of the Pre-tests

I completed ALL of the Post tests

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Multiplication Table

	0	1	2	3	4	5	6	7	8	9	10	11	12
1	0	1	2	3	4	5	6	7	8	9	10	11	12
2	0	2	4	6	8	10	12	14	16	18	20	22	24
3	0	3	6	9	12	15	18	21	24	27	30	33	36
4	0	4	8	12	16	20	24	28	32	36	40	44	48
5	0	5	10	15	20	25	30	35	40	45	50	55	60
6	0	6	12	18	24	30	36	42	48	54	60	66	72
7	0	7	14	21	28	35	42	49	56	63	70	77	84
8	0	8	16	24	32	40	48	56	64	72	80	88	96
9	0	9	18	27	36	45	54	63	72	81	90	99	108
10	0	10	20	30	40	50	60	70	80	90	100	110	120
11	0	11	22	33	44	55	66	77	88	99	110	121	132
12	0	12	24	36	48	60	72	84	96	108	120	132	144

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Fun with Arrays

An array has rows and columns. It can be used to represent multiplication and division. Rows represent the number of groups. Columns represent the number in each group.

Here is an array. This array has 3 rows and 7 columns.

7 columns

3 rows
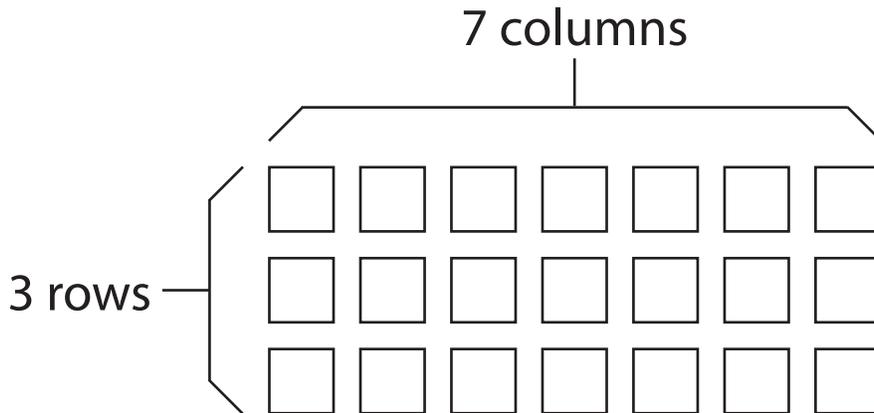
In the array below, how many rows are there?
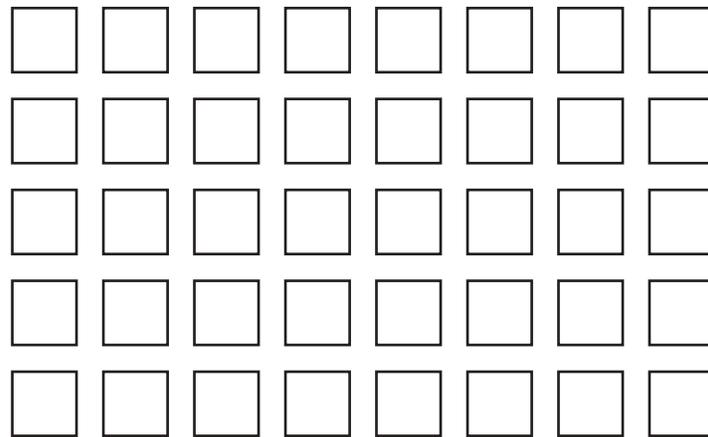
_____ rows

How many columns does the array below have?
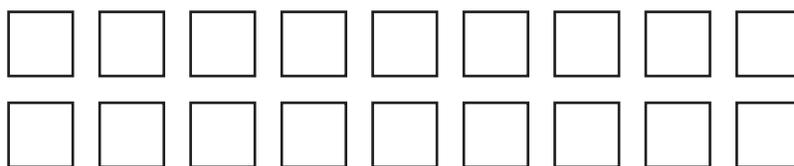
_____ columns

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Multiplication Word Problems with Arrays

Here are two examples of how arrays can be used to model and solve multiplication word problems.

1. Maxwell has 3 buckets. There are 8 tadpoles in each bucket. How many tadpoles does he have total?

Look at the array below. In this problem, the **bucket** is the **group**. The array has 3 rows because there are 3 buckets. There are 8 columns because each bucket has 8 tadpoles.
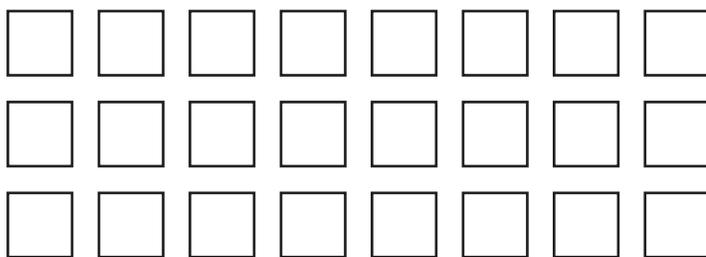
This array is a model for 3 x 8 = 24. Maxwell has 24 tadpoles in all.

2. Abby has 4 vines of grapes. Each vine has 10 grapes. How many grapes does Abby have in total?

Look at the array below. In this problem, the **vines of grapes** is the **group**. The array has 4 rows because there are 4 vines. The array has 10 columns because there are 10 grapes in each group.
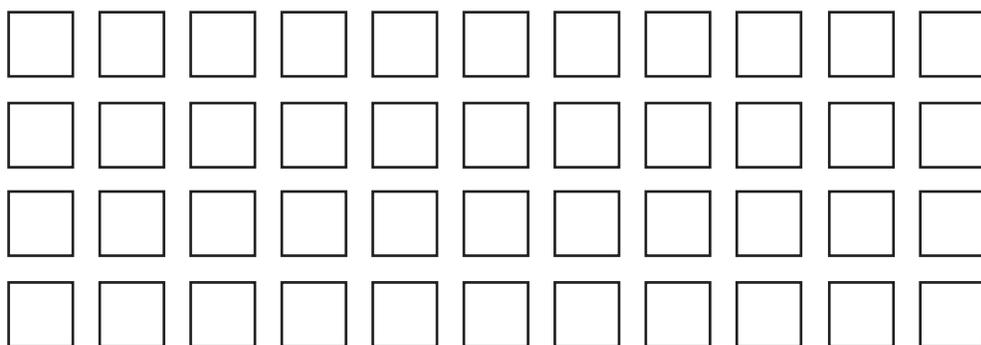
This array is a model for 4 x 10 = 40. Abby has 40 grapes in total.

Division Word Problems with Arrays

Here are two examples of how arrays can be used to model and solve division word problems.

1. Kinsley has 27 crayons. She puts the crayons into 3 pouches. How many crayons will be in each pouch?

Look at the array below. In this problem, the **pouch** is the **group**. The array has 3 rows because there are 3 pouches.
To draw a picture of the array, first draw 3 rows of pouches. Then, keep drawing 3 rows of pouches at a time until you have drawn 27 boxes.
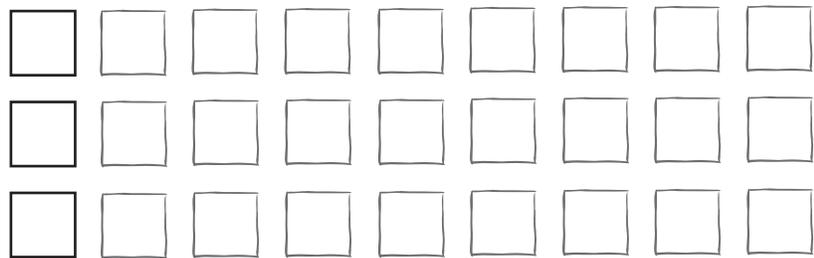
This array is a model for 27 ÷ 3 = 9. There will be 9 crayons in each pouch.

2. Spencer has 32 toys. He puts the toys into 4 bins. How many toys will be in each bin?

Look at the array below. In this problem, the **bin** is the **group**. The array has 4 rows because there are 4 bins.
To draw a picture of the array, first draw 4 rows of bins. Then, keep drawing 4 rows of toys at a time until you have drawn 32 toys.
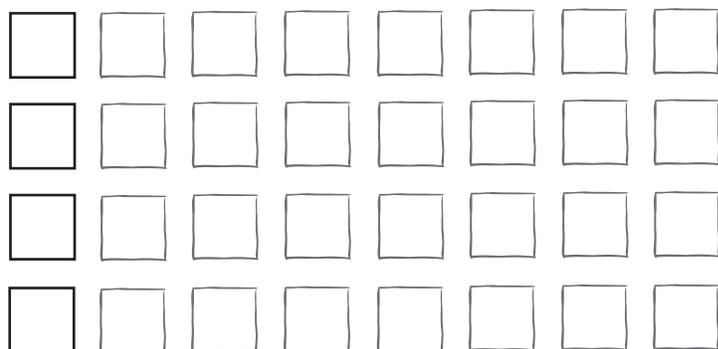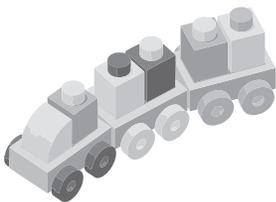
This array is a model for 32 ÷ 4 = 8. There will be 8 toys in each bin.

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Fun with Area

When you know multiplication, area problems are easy to solve! The area of a shape is the size of the space inside the shape. To find the area, count the square units inside of the shape.

Try these problems!
What is the area of the shape below? Count the squares to find the answer.
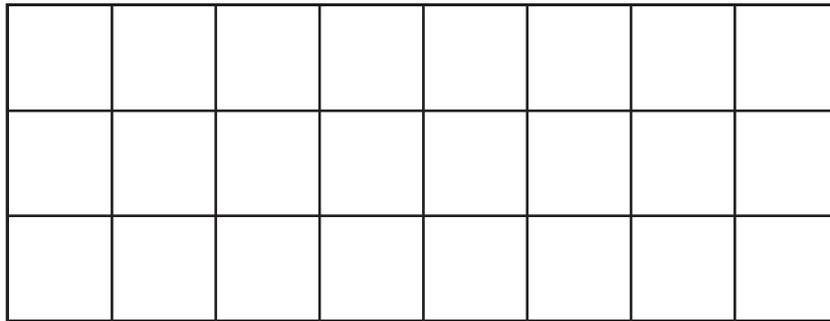
Area = _____ square units

What is the area of the next shape below? Count the squares to find the answer.

Area = _____ square units

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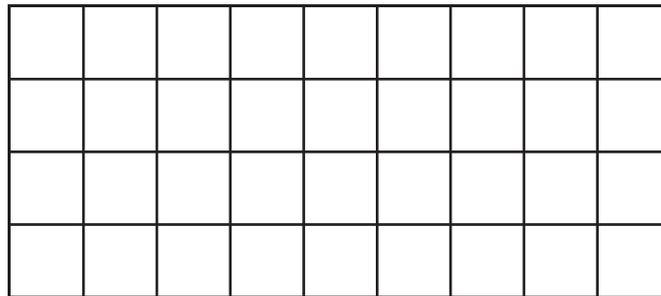
Using Multiplication to Find Area

Let's try using multiplication to find the area of a shape instead of counting. Study the equation for area below.

Area = Length x Width

The length of the shape below is 8 units. The width is 5 units.
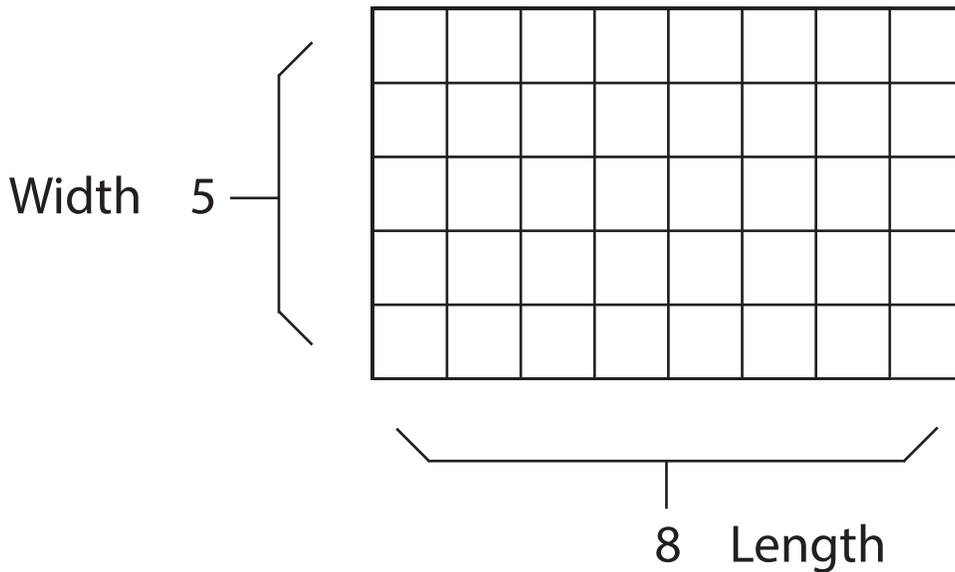
Width   5

8   Length

Area = Length x Width
Area = 8 units x 5 units = 40 square units

Important note: you will get the same answer if you multiply width x length. The **commutative property of multiplication** tells us that length x width = width x length.

Area = Length x Width   Area = Width x Length

Look at the shape below. Follow the steps to solve for area.
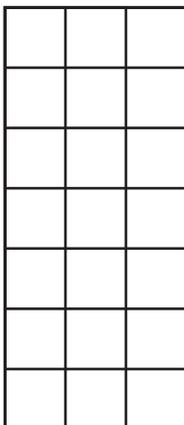
Step 1:   What is the length? _____ units

Step 2:   What is the width? _____ units

Step 3:   What is the area of this shape?

_____ x _____ = _____

Area = _____ square units

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More Practice Using Multiplication to Find Area

Directions: Find the area of each shape using multiplication.

1.

What is the length? _____ units

What is the width? _____ units

What is the area?

_____ x _____ = _____
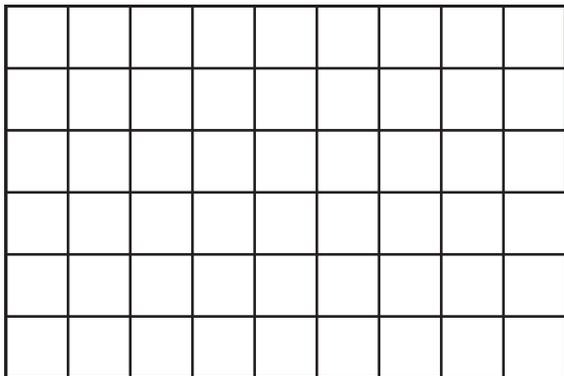
Area = _____ square units

2.

What is the length? _____ units

What is the width? _____ units

What is the area?

_____ x _____ = _____
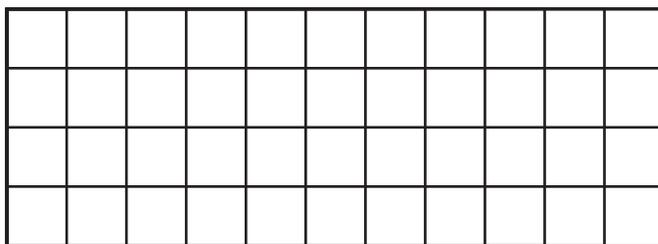
Area = _____ square units

3.

What is the length? _____ units

What is the width? _____ units

What is the area?

_____ x _____ = _____
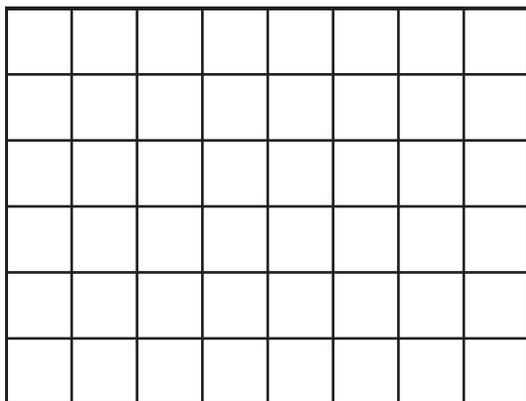
Area = _____ square units

4.

What is the length? _____ units

What is the width? _____ units

What is the area?

_____ x _____ = _____
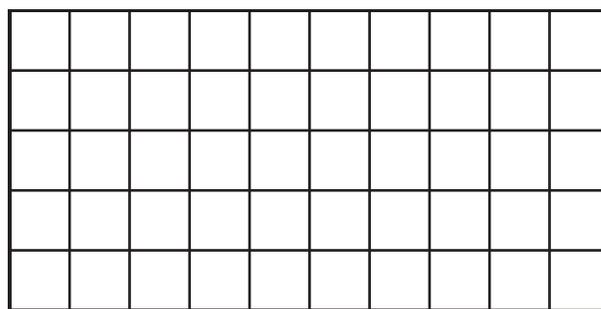
Area = _____ square units

Finding the Area of Shapes with Different Units

Some shapes will use different units of measurement. You can still find the area by multiplying length x width.

10 inches

6 inches   6 inches

10 inches

The unit of measurement for this shape is **inches**.

What is the length of this shape? __10__ __inches__
(unit)

What is the width of this shape? __6__ __inches__
(unit)

What is the area of this shape? __60__ square __inches__
(unit)

Try these problems! Look at the shape below.
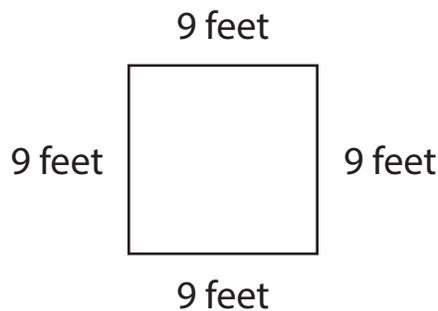
9 feet

9 feet   9 feet

9 feet

What are the units? _____

What is the length? _____ _____
(unit)

What is the width? _____ _____
(unit)

What is the area? _____ square _____
(unit)

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More Practice Finding the Area of Different Shapes

1.

7 cm

7 cm   7 cm

7 cm
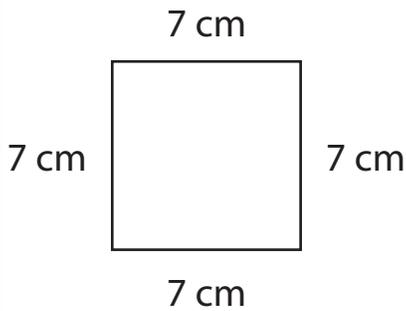
cm = centimeters

What are the units? _____

What is the length? _____ _____
                              (unit)

What is the width? _____ _____
                              (unit)

What is the area? _____ square _____
                                        (unit)

2.
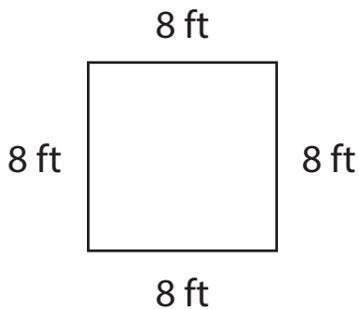
8 ft

8 ft   8 ft

8 ft

ft = feet

What are the units? _____

What is the length? _____ _____
                              (unit)

What is the width? _____ _____
                              (unit)

What is the area? _____ square _____
                                        (unit)

3.

12 in

4 in   4 in

12 in
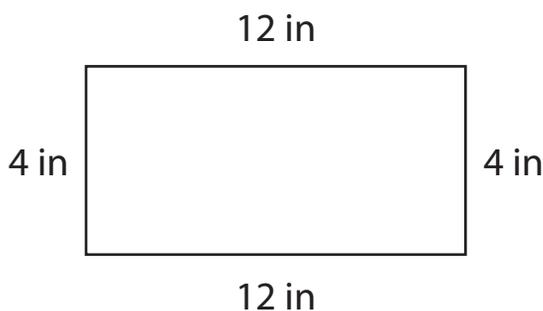
in = inches

What are the units? _____

What is the length? _____ _____
                              (unit)

What is the width? _____ _____
                              (unit)

What is the area? _____ square _____
                                        (unit)

Real World Area Problems

Example: Justin has a rectangular poster in his room, as shown below. What is the area, in square feet, of Justin's poster?

7 ft

8 ft

ft = feet
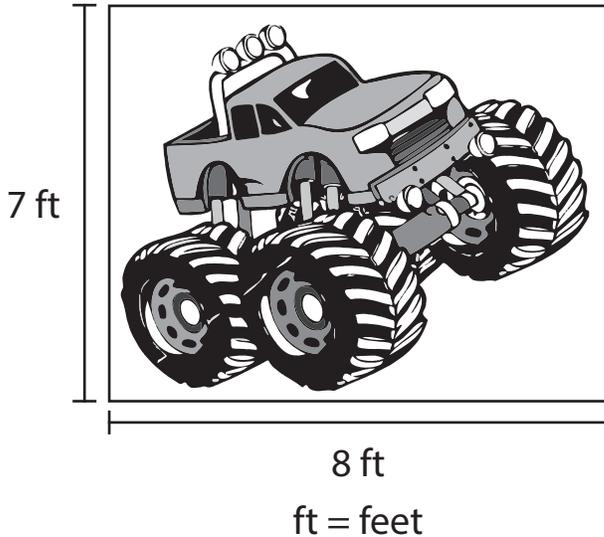
What are the units? ___feet___

What is the length? __7__ __feet__
(unit)

What is the width? __4__ __feet__
(unit)

What is the area?

__28__ square __feet__
(unit)

1. Zoey has a rectangular poster in her room, as shown below. What is the area, in square inches, of Zoey's poster?

12 in

8 in

in = inches

What are the units? _____

What is the length? _____ _____
(unit)

What is the width? _____ _____
(unit)

What is the area?

_____ square _____
(unit)

10

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Real World Area Problems

2. Vanessa t has a rectangular poster in her room, as shown below. What is the area, in square inches, of Vanessa's poster?
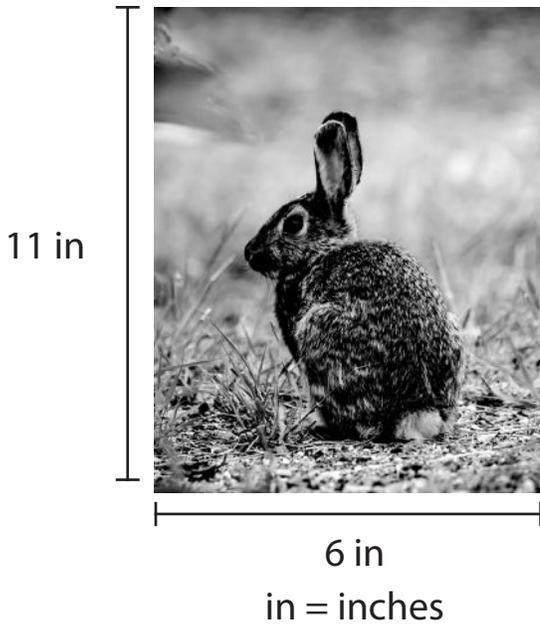
11 in

6 in

in = inches

What are the units? _____

What is the length? _____ _____
(unit)

What is the width? _____ _____
(unit)

What is the area?

_____ square _____
(unit)

3. Ian is helping his father build a garden. They draw a picture of the garden, as shown below. What is the area, in square feet, of Ian's garden?

12 ft

7 ft

ft = feet

What are the units? _____

What is the length?

_____ _____
(unit)

What is the width?

_____ _____
(unit)

What is the area?

_____ square _____
(unit)

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Real World Area Problems

4. Tucker plans to retile the cafeteria floor. He draws a picture of their cafeteria floor, as shown below. What is the area, in square yards, of Tucker's cafeteria floor?
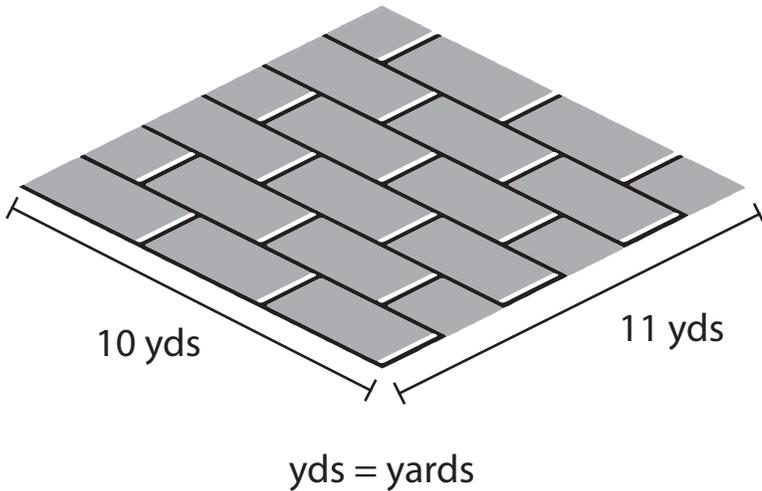
What are the units? _____

What is the length?

_____ _____
         (unit)

What is the width?

_____
    (unit)

What is the area?

_____ square _____
           (unit)

10 yds

11 yds

yds = yards

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Have you ever wished your students would slow down and really think through their word problems? Do your students struggle to determine whether to use multiplication or division in a word problem? Do your students need to enhance their multiplication and division fluency?

Multiplication and Division in the Real World connects multiplication and division concepts to relatable word problems that students could encounter daily.

Book B includes multiplication and division fluency practice for multiples seven through twelve and 220 practical, relevant, and relatable word problems. Students will develop multiplication and division strategies like skip counting, repeated addition, and fact families. This approach strengthens students' math fact fluency and enhances their problem-solving ability.

Incorporate this book into your math lessons and see students' math confidence soar! Increased math confidence helps students process each word problem in its entirety - students will slow down and focus on choosing the correct strategy to solve the problem.

Use *Multiplication and Division in the Real World* in classrooms, homework support, intervention, afterschool programs, Saturday academies, or Summer Learning programs.

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Suzy Koontz is an educational consultant, an actuary, a former math teacher, and author. She is a frequent speaker on the benefits of combining math practice with movement. Suzy's mission is for all students to be on grade level in math and reading. As a national presenter for schools, conferences and PTA/O, Suzy shares how movement-based learning can assist in accomplishing this goal. She lives in Ithaca, New York, with her husband and four daughters.

Learn more about Math & Movement at www.mathandmovement.com