Multiplication and Division in the Real World

Book A

This workbook belongs to

math & movement

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Multiplication and Division
in the Real World
Book A

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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 2, 3, 4, 5, and 6. 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 40 additional mixed multiplication and division real-world problems that offer a mix of all the multiples.

We hope you enjoy this book!

Suzy Koontz
Math & Movement Founder and CEO

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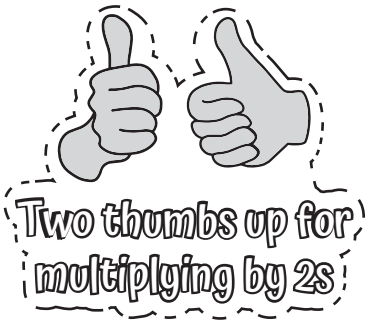

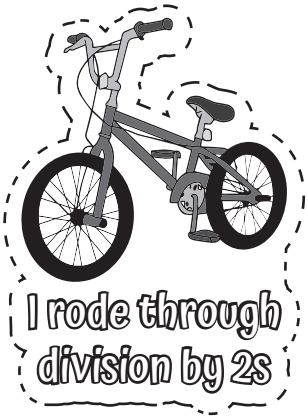

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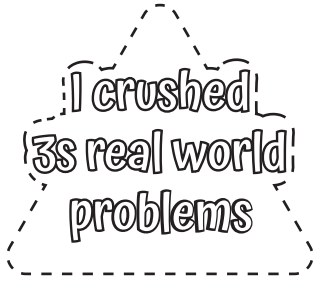

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I vanquished 4s practice problems

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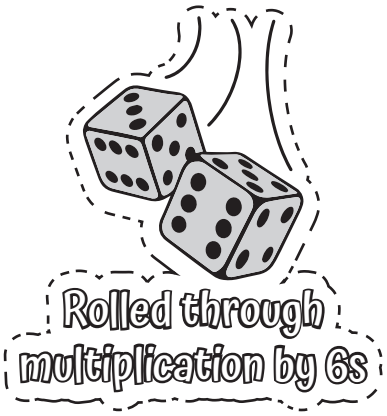

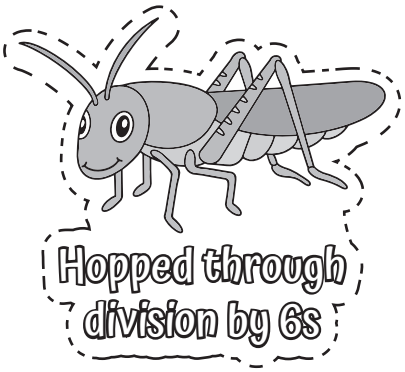

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Multiplication Table

	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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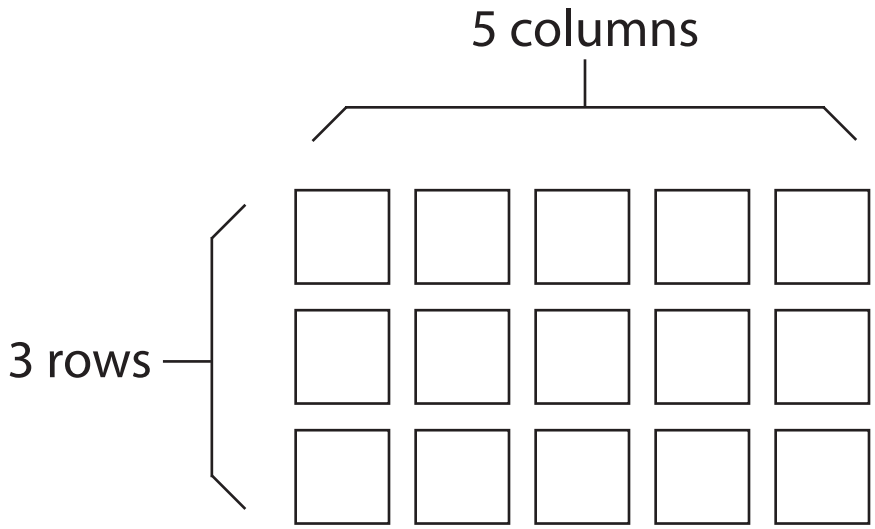
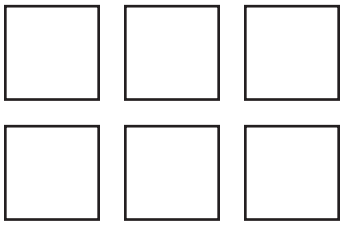
Fun with Arrays

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 5 columns.

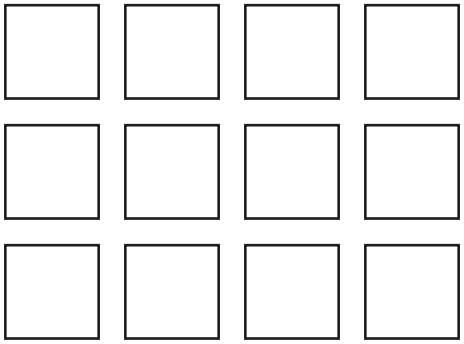


In the array below, how many rows are there?



_____ rows

How many columns does the array below have?



_____ columns

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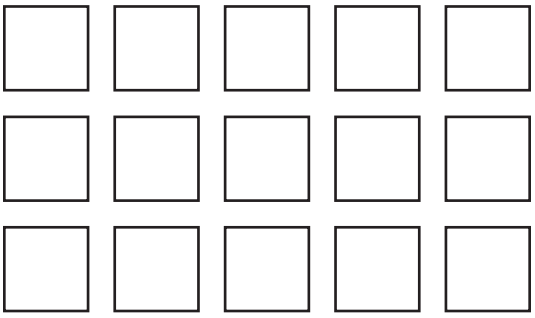
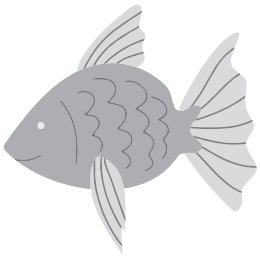
Multiplication Word Problems with Arrays

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

1. Sam has 3 fish tanks. There are 5 fish in each tank. How many fish does he have total?

Look at the array below. In this problem, the **fish tank** is the **group**. The array has 3 rows because there are 3 fish tanks. There are 5 columns because each fish tank has 5 fish.

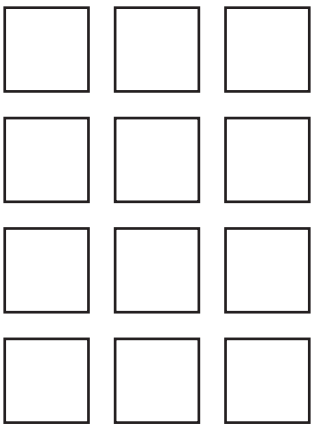


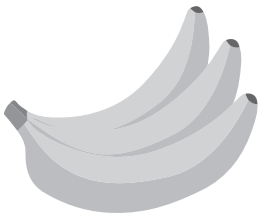


This array is a model for 3 x 5 = 15. Sam has 15 fish in all.

2. Jack has 4 bunches of bananas. Each bunch has 3 bananas. How many bananas does Jack have in total?

Look at the array below. In this problem, the **bunch of bananas** is the **group**. The array has 4 rows because there are 4 bunches. The array has 3 columns because there are 3 bananas in each group.





This array is a model for 4 x 3 = 12. Jack has 12 bananas in total.

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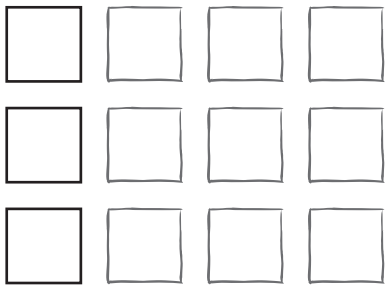
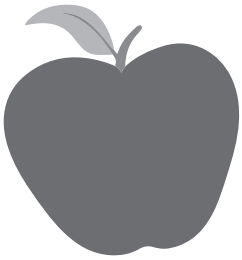
Division Word Problems with Arrays

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

1. Toby has 12 apples. He puts the apples into 3 boxes. How many apples will be in each box?

Look at the array below. In this problem, the **box** is the **group**. The array has 3 rows because there are 3 boxes.
To draw a picture of the array, first draw 3 rows of boxes. Then, keep drawing 3 rows of apples at a time until you have drawn 12 apples.

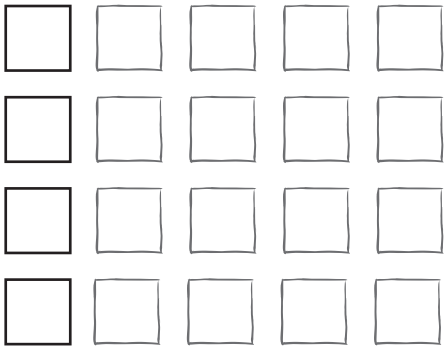


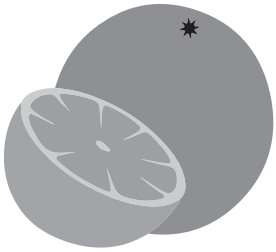


This array is a model for 12 ÷ 3 = 4. There will be 4 apples in each box.

2. Ava has 20 oranges. She puts the oranges into 4 baskets. How many oranges will be in each basket?

Look at the array below. In this problem, the **basket** is the **group**. The array has 4 rows because there are 4 baskets.
To draw a picture of the array, first draw 4 rows of baskets. Then, keep drawing 4 rows of oranges at a time until you have drawn 20 oranges.





This array is a model for 20 ÷ 4 = 5. There will be 5 oranges in each basket.

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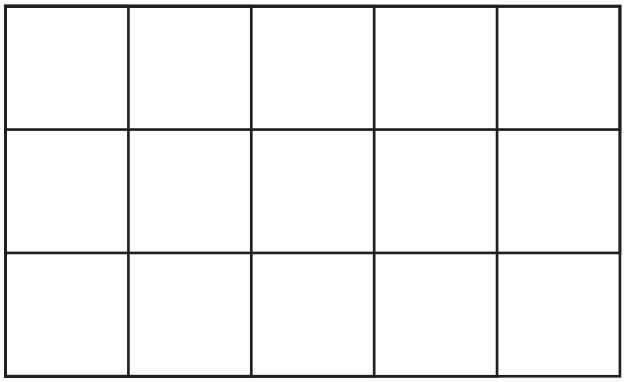
Fun with Area

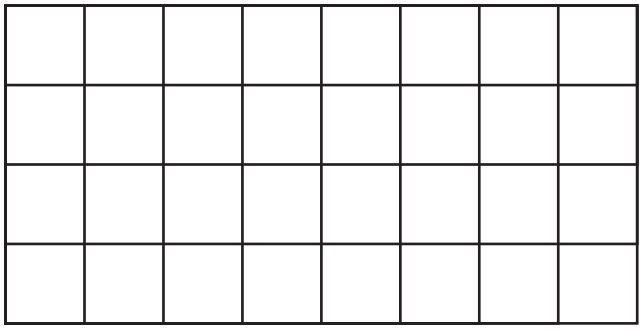
When you know multiplication, area problems are easy to solve! The area of a shape is the size of the space inside the shape. To find the area, count the square units inside of the shape.

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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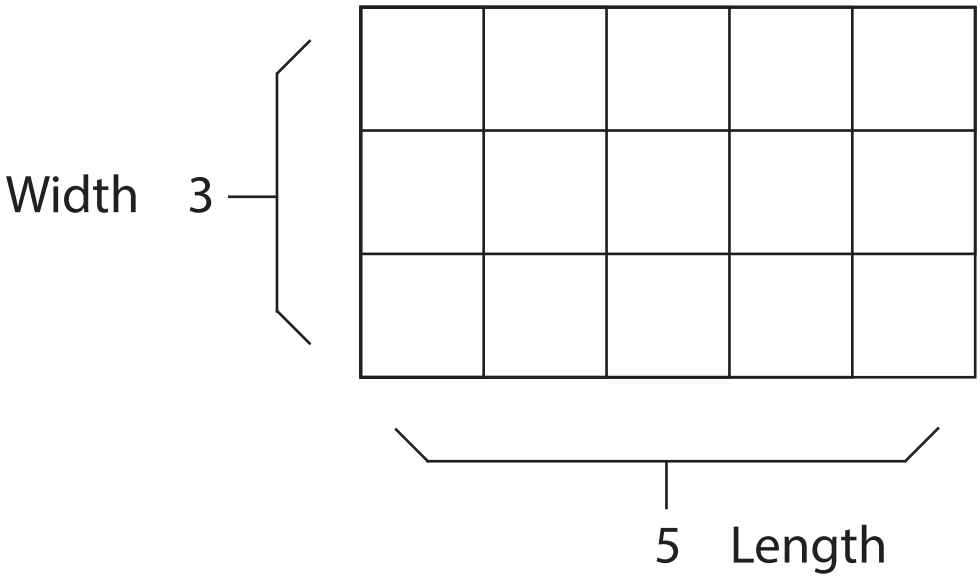
Using Multiplication to Find Area

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 5 units. The width is 3 units.

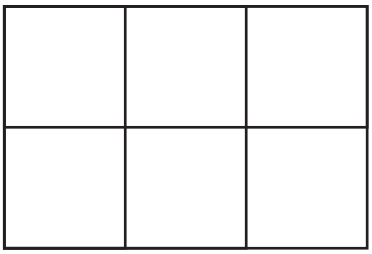


Area = Length x Width
Area = 5 units x 3 units = 15 square units

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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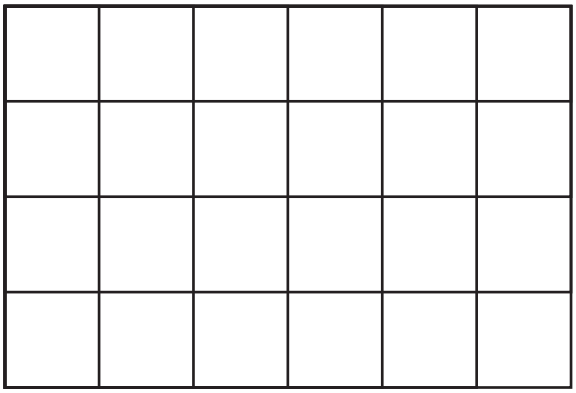
More Practice Using Multiplication to Find Area

Directions: Find the area of each shape using multiplication.

1.



What is the length? _____ units

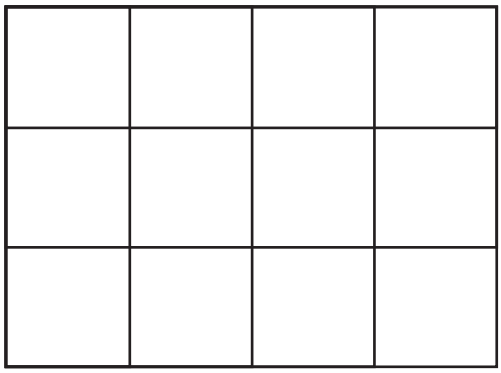
What is the width? _____ units

What is the area?

_____ x _____ = _____

Area = _____ square units

2.



What is the length? _____ units

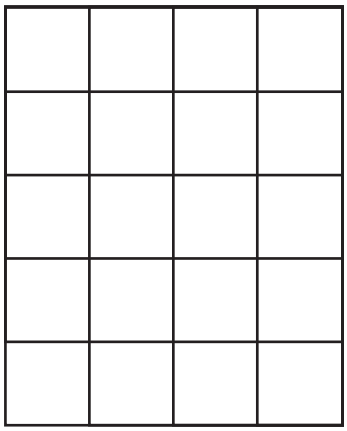
What is the width? _____ units

What is the area?

_____ x _____ = _____

Area = _____ square units

3.



What is the length? _____ units

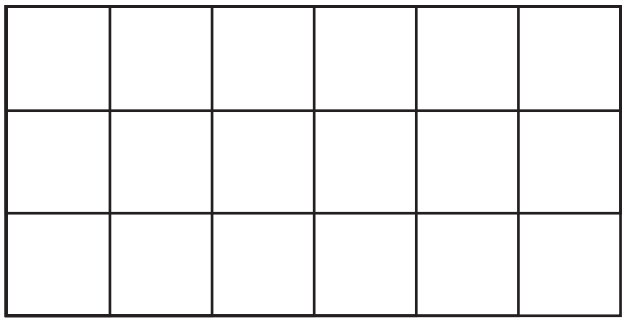
What is the width? _____ units

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

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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.

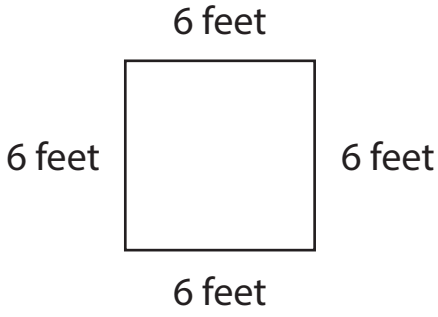
The unit of measurement for this shape is **inches**.

What is the length of this shape? 9 inches
(unit)

What is the width of this shape? 5 _____
(unit)

What is the area of this shape? 45 square inches
(unit)

Try these problems! Look at the shape below.



What are the units? _____

What is the length? _____ _____
(unit)

What is the width? _____ _____
(unit)

What is the area? _____ square _____
(unit)

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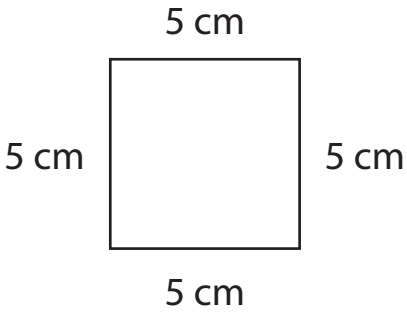
More Practice Finding the Area of Different Shapes

1.



cm = centimeters

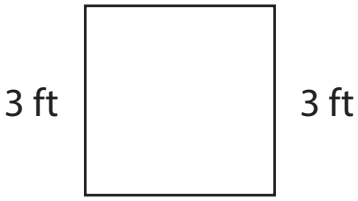
What are the units? _____

What is the length? _____ _____ (unit)

What is the width? _____ _____ (unit)

What is the area? _____ square _____ (unit)

2.



ft = feet

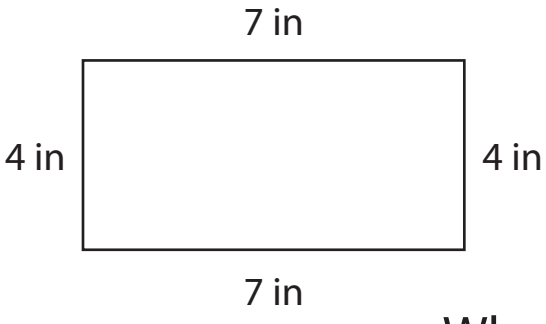
What are the units? _____

What is the length? _____ _____ (unit)

What is the width? _____ _____ (unit)

What is the area? _____ square _____ (unit)

3.



in = inches

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

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

ft = feet

What are the units? feet

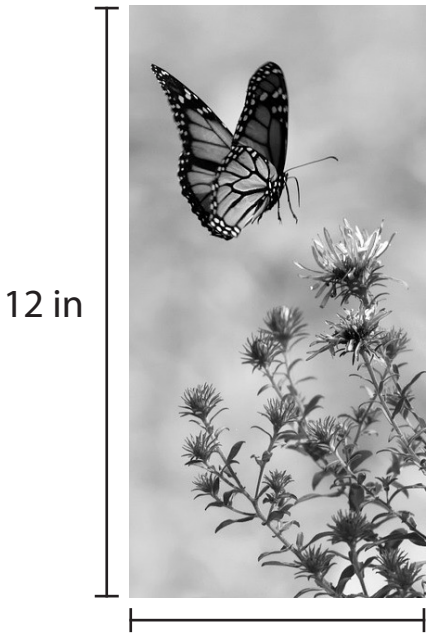
What is the length? 7 feet
(unit)

What is the width? 4 feet
(unit)

What is the area?

28 square feet
(unit)

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



in = inches

What are the units? _____

What is the length? _____ _____
(unit)

What is the width? _____ _____
(unit)

What is the area?

_____ square _____
(unit)

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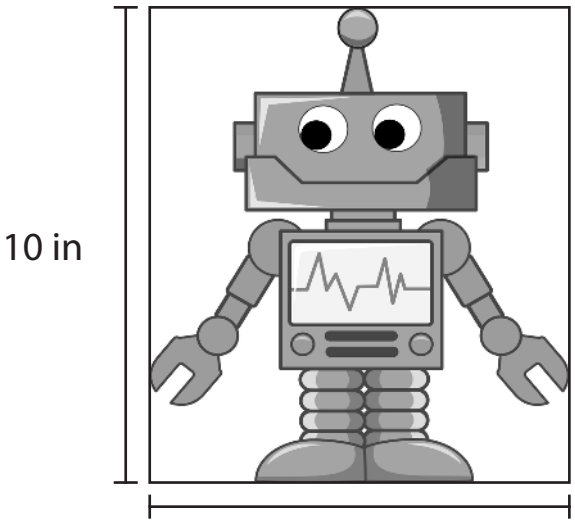
Real World Area Problems

2. Vincent has a rectangular poster in his room, as shown below. What is the area, in square inches, of Vincent's poster?



in = inches

What are the units? _____

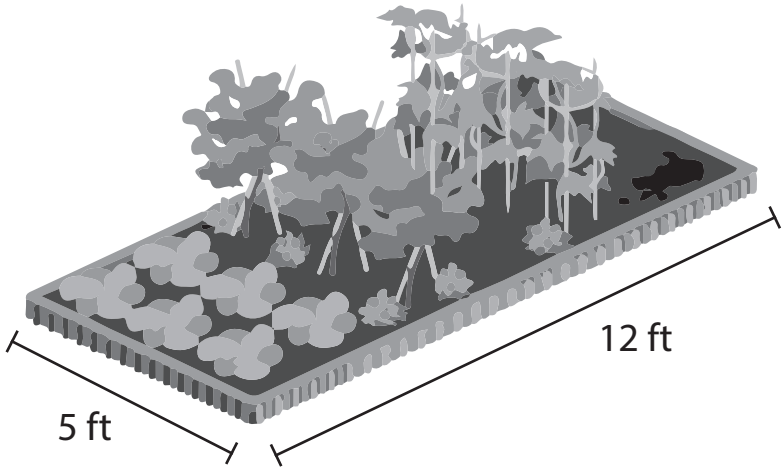
What is the length? _____ _____
(unit)

What is the width? _____ _____
(unit)

What is the area?

_____ square _____
(unit)

3. Issac 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 Isaac's garden?



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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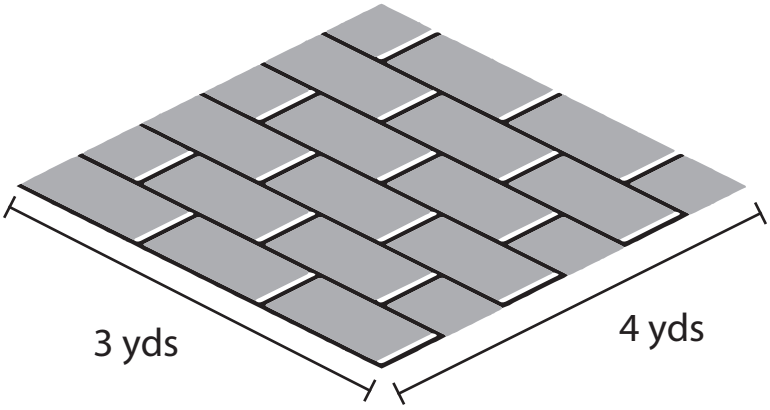
Real World Area Problems

4. Trinity and her mom plan to retile their kitchen floor. They draw a picture of their kitchen floor, as shown below. What is the area, in square yards, of Trinity's kitchen floor?



yds = yards

What are the units? _____

What is the length?

_____ _____
(unit)

What is the width?

_____ _____
(unit)

What is the area?

_____ square _____
(unit)

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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?

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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.

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