

Name _____



Solve & Share

Ms. Witt bought 3 boxes of paint with 5 jars of paint in each box. What is the total number of jars Ms. Witt bought? *Solve this problem any way you choose.*

Step Up to Grade 3

Lesson 1

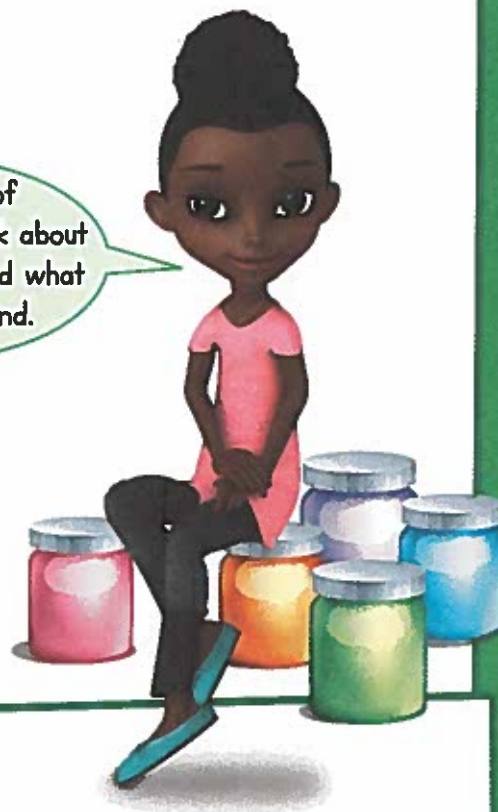
Multiplication as Repeated Addition

I can ...

use addition or multiplication to join equal groups.

© **Content Standards** 3.OA.A.1, 3.OA.A.3
Mathematical Practices MP.1, MP.2, MP.3, MP.4, MP.6

Make sense of this problem. Think about what you know and what you need to find.

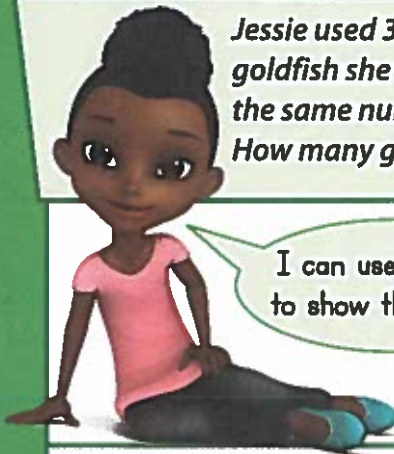


Look Back! © **MP.4 Model with Math** How can you use a picture to show the math you did in the problem?

How Can You Find the Total Number of Objects in Equal Groups?

A

Jessie used 3 bags to bring home the goldfish she won at the Fun Fair. She put the same number of goldfish in each bag. How many goldfish did she win?



I can use counters to show the groups.

8 goldfish in each bag

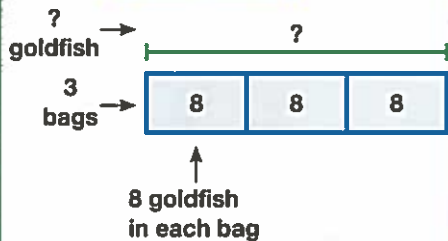


B

The counters show 3 groups of 8 goldfish.



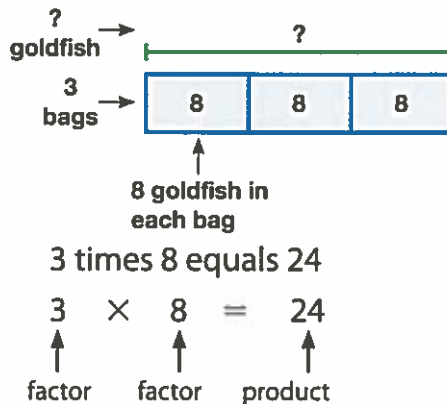
You can use addition to join equal groups.



$$8 + 8 + 8 = 24$$

C

Multiplication is an operation that gives the total number when you join equal groups.



Factors are the numbers that are being multiplied. The **product** is the answer to a multiplication problem.

D

You can write **equations**.

Use a question mark for the **unknown** number that you find.

Addition equation:

$$8 + 8 + 8 = ?$$

$$8 + 8 + 8 = 24$$

Multiplication equation:

$$3 \times 8 = ?$$

$$3 \times 8 = 24$$

Jessie won 24 goldfish.



Convince Me! © MP.4 Model with Math Suppose Jessie won 5 bags of 8 goldfish. Draw a bar diagram and write an addition equation and a multiplication equation to represent the problem.



Name _____

★ Guided Practice

Do You Understand?

1. **MP.2 Reasoning** Can you write $3 + 3 + 3 + 3 = 12$ as a multiplication equation? Explain.
2. **MP.2 Reasoning** Can you write $1 + 5 + 7 = 13$ as a multiplication equation? Explain.
3. Write an addition equation and a multiplication equation to solve this problem.
Matt buys 3 bags of apples. There are 6 apples in each bag. How many apples does Matt buy?

Do You Know How?

Complete 4 and 5. Use the pictures to help.



2 groups of ____

$3 + 3 = \underline{\quad}$

$2 \times \underline{\quad} = \underline{\quad}$



____ groups of 2

$2 + \underline{\quad} + \underline{\quad} = \underline{\quad}$

$3 \times \underline{\quad} = \underline{\quad}$

★ Independent Practice

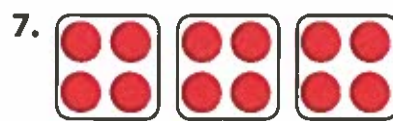
Complete 6 and 7. Use the pictures to help.



2 groups of ____

$4 + \underline{\quad} = \underline{\quad}$

$2 \times \underline{\quad} = \underline{\quad}$



3 groups of ____

$4 + \underline{\quad} + \underline{\quad} = \underline{\quad}$

$3 \times \underline{\quad} = \underline{\quad}$

In 8–11, complete each equation. Use counters or draw a picture to help.

8. $5 + 5 + 5 + 5 = 4 \times \underline{\quad}$

9. $\underline{\quad} + \underline{\quad} = 2 \times 7$

10. $9 + \underline{\quad} = 2 \times \underline{\quad}$

11. $6 + 6 + 6 + 6 = \underline{\quad} \times \underline{\quad}$

Math Practices and Problem Solving

12. **MP.4 Model with Math** Lily has 8 eggs. Draw pictures to show two different ways Lily can make equal groups using 8 eggs.

13. **MP.6 Be Precise** Erin reads 54 pages of her book. The book has 93 pages in all. How many pages does Erin have left to read? Show your work.

____ pages

14. **MP.3 Critique Reasoning** Chris says she can write two different equations to show 15 as repeated addition. Is Chris correct? Why or why not?

15. **Higher Order Thinking** George says you need equal groups to multiply. Is George correct? Why or why not?

Common Core Assessment

16. Zoey has 10 stickers. She puts them in 2 groups of 5. How can you represent this? Choose all that apply.

- $5 + 2$
- $2 + 2 + 2 + 2 + 2$
- $5 + 5$
- 2×5
- $10 + 2 + 5$

17. Drew earns \$6 each week. He wants to know how much money he will have saved after 5 weeks. How can you represent this? Choose all that apply.

- $\$6 + \$6 + \$6 + \$6 + \$6$
- $\$6 \times 6$
- $\$6 + \5
- $\$5 + \$5 + \$5 + \$5 + \$5$
- $\$6 \times 5$

Name _____



Solve & Share

Mark put sports cards in an album. He put 4 rows of cards on each page. He put 3 cards in each row. How many cards are on each page?
Solve this problem any way you choose.

You can **use tools**. Sometimes using objects can help you solve a problem. Show your work in the space below!



Step Up to Grade 3

Lesson 2

Arrays and Multiplication

I can ...

use arrays to show and solve multiplication problems.

© **Content Standards** 3.OA.A.3, 3.OA.A.1
Mathematical Practices MP.1, MP.3, MP.5, MP.7

Look Back! © **MP.1 Make Sense and Persevere** Will your answer be the same if Mark puts 3 rows of 4 cards on each page? Explain.

Name _____

★ Guided Practice

Do You Understand?

1. Look at page 926. What does the second factor tell you about the array?
2. Gina puts muffins in 4 rows with 8 muffins in each row. Draw an array to find the total number of muffins.

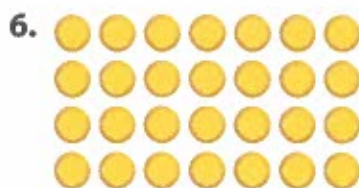
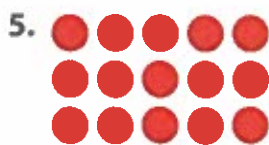
Do You Know How?

In 3 and 4, write a multiplication equation for each array.



★ Independent Practice

In 5–7, write a multiplication equation for each array.



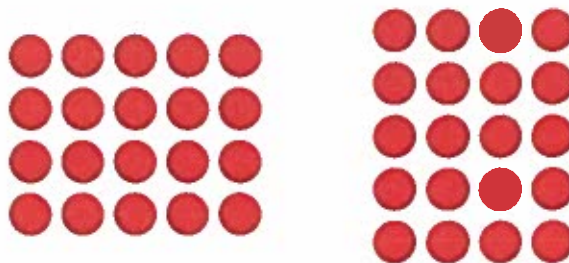
In 8 and 9, draw an array to show each equation. Write the product.

8. $5 \times 9 = \underline{\quad}$

9. $2 \times 8 = \underline{\quad}$

Math Practices and Problem Solving

10. © **MP.7 Look for Relationships** Lance draws these two arrays. How are the arrays alike? How are they different?

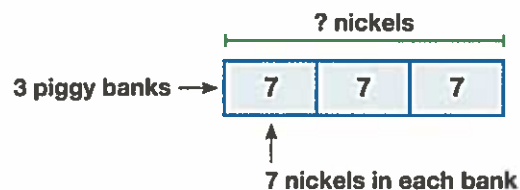


11. © **MP.3 Construct Arguments** How many more birch trees are there than pine trees? Explain how you know.

Trees in the Park	
Birch	
Oak	
Maple	
Pine	

12. **Higher Order Thinking** Rachel has 19 pictures. Can she use all the pictures to make an array with exactly 4 equal rows? Why or why not?

13. Larry puts 7 nickels in each of his 3 empty piggy banks. How many nickels does Larry put in the banks? Write a multiplication equation to show how you solved the problem.



Common Core Assessment

14. Mr. Williams planted 6 rows of apple trees on his farm. The apple trees are in 8 columns. How many trees are there in all?

- (A) 6
- (B) 8
- (C) 14
- (D) 48

15. Tina bought the stickers shown below. Which of the following shows how many stickers Tina bought?

- (A) $5 + 2$
- (B) 5×2
- (C) 5×5
- (D) $5 - 2$



There are 5 rows.
There are 2 stickers
in each row.

Name _____



Solve & Share

Four friends picked 20 apples. They want to share them equally. How many apples should each person get? *Solve this problem any way you choose.*

Step Up to Grade 3

Lesson 3

Division as Sharing

I can ...

use objects or pictures to show how objects can be divided into equal groups.

© Content Standards 3.OA.A.2, 3.OA.A.3
Mathematical Practices MP.1, MP.3, MP.4, MP.5, MP.6

Model with math.
Drawing a picture that represents the problem can help you solve it.
Show your work!



Look Back! © MP.5 Use Appropriate Tools Can you use counters to help you solve this problem? Explain.

A

Three friends have 12 toys to share equally.
How many toys will each friend get?

Think of arranging 12 toys into 3 equal groups.



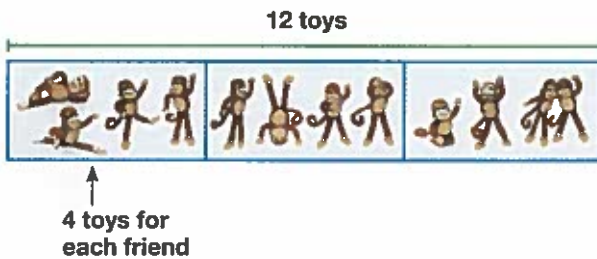
Division is an operation that is used to find how many equal groups there are or how many are in each group.



B

What You Think

Put one toy at a time in each group.



When all the toys are grouped, there will be 4 in each group.

C

What You Write

You can write a division equation to find the number in each group.

$$\begin{array}{ccccccc}
 12 & \div & 3 & = & 4 \\
 \uparrow & & \uparrow & & \uparrow \\
 \text{Total} & & \text{Number of equal groups} & & \text{Number in each group}
 \end{array}$$

Each friend will get 4 toys.

Convince Me! © MP.6 Be Precise What would happen if 3 friends wanted to share 13 toys equally?

Name _____

★ Guided Practice

Do You Understand?

1. 15 blocks are divided into 3 rows. How many blocks are in each row? Use the bar diagram to solve.



$$15 \div 3 = \underline{\quad} \text{ blocks}$$

2. **MP.6 Be Precise** Can 11 apples be shared equally among 4 children with no apples remaining? Explain.

Do You Know How?

In 3 and 4, draw a picture to solve.

3. 16 bananas are shared equally by 4 monkeys. How many bananas does each monkey get?
4. 21 marbles are divided equally into 3 jars. How many marbles are in each jar?

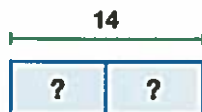
★ Independent Practice

In 5 and 6, draw a picture to solve.

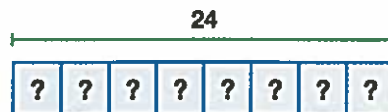
5. 24 sandwiches are divided equally into 6 bags. How many sandwiches are in each bag?
6. 12 pencils are shared equally by 2 people. How many pencils does each person have?

In 7–10, complete each equation.

7. $14 \div 2 = \square$



8. $24 \div 8 = \square$



9. $12 \div 4 = \underline{\quad}$

10. $28 \div 7 = \underline{\quad}$

Math Practices and Problem Solving

11. © **MP.3 Critique Reasoning** Dean is putting 16 pens into equal groups. He says if he puts them into 2 equal groups he will have more pens in each group than if he puts them in 4 equal groups. Is Dean correct? Explain.

12. © **MP.1 Make Sense and Persevere** Ms. Baker's second grade class is divided into 4 teams. Each team has an equal number of students. Do you have enough information to find how many students are on each team? Explain.

13. Lily draws a rectangle. Sarah draws a pentagon. Who draws the shape with more sides? How many more sides does that shape have?

14. © **MP.4 Model with Math** The jazz band in a parade marches in 9 rows with 6 members in each row. Write an equation to show how many members there are.

15. **Number Sense** Joan equally shares 30 grapes with some friends. Is the number of grapes that each friend gets greater than 30 or less than 30? Explain.

16. **Higher Order Thinking** Lacie has 16 shells. She gives 6 shells to her mom. Then she and her sister share the other shells equally. How many shells does Lacie get? How many shells does her sister get? How do you know?

© Common Core Assessment

17. Darren has the 12 stickers shown at the right. He wants to put an equal number of stickers on each of 2 books. Draw circles in each box to represent the stickers Darren puts on each book.



Book 1

Book 2

Name _____



Solve & Share

Li made 12 tacos. He wants to give some of his friends 2 tacos each. If Li does not get any of the tacos, how many of his friends will get tacos? *Solve this problem any way you choose.*

You can use **reasoning**.
How can what you know
about sharing help you solve the
problem? Show your work in
the space below!



Step Up to Grade 3

Lesson 4

Division as Repeated Subtraction

I can ...

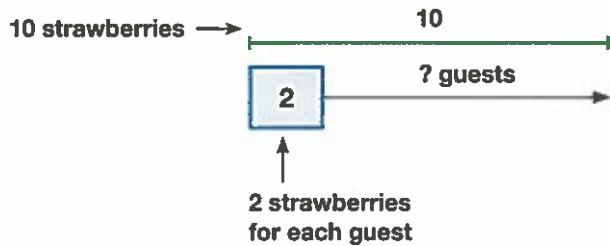
use repeated subtraction to understand and solve division problems.

© **Content Standards** 3.OA.A.2, 3.OA.A.3
Mathematical Practices MP.2, MP.4, MP.5, MP.8

Look Back! © **MP.5 Use Appropriate Tools** How can counters or other objects help you show your work?

A

June has 10 strawberries to serve to her guests. If each guest eats 2 strawberries, how many guests can June serve?



B

You can use repeated subtraction to find how many groups of 2 are in 10.

$$\begin{array}{l}
 10 - 2 = 8 \\
 8 - 2 = 6 \\
 6 - 2 = 4 \\
 4 - 2 = 2 \\
 2 - 2 = 0
 \end{array}
 \left. \begin{array}{l} \\ \\ \\ \\ \\ \end{array} \right\} \begin{array}{l} \\ \\ \text{You can subtract 2 five times.} \\ \text{There are five groups of 2 in 10.} \\ \\ \text{There are no strawberries left.} \end{array}$$

June can serve 5 guests.

C

You can write a division equation to find the number of groups.

Write: $10 \div 2 = ?$

Read: Ten divided by 2 equals what number?

Solve: $10 \div 2 = 5$

June can serve 5 guests.

Convince Me! © **MP.4 Model with Math** In the example above, what if each guest eats 5 strawberries? Use the math you know to represent the problem and find how many guests June could serve.

★ Guided Practice

Do You Understand?

1. Show how you can use repeated subtraction to find how many groups of 5 there are in 25. Then write a division equation to solve the problem.

Do You Know How?

In 2 and 3, use counters or draw a picture to solve.

2. The basketball team has 14 shoes. There are 2 shoes in each pair. How many pairs of shoes are there?
3. Maya has 18 cat toys. She gives each of her cats 6 toys. How many cats does Maya have?

★ Independent Practice

In 4 and 5, complete the equations.

4. Tanya picks 18 pears. She places 9 pears in each bag. How many bags does Tanya have?

$$18 - 9 = \underline{\quad}$$

$$\underline{\quad} - 9 = \underline{\quad}$$

$$\underline{\quad} \div 9 = \underline{\quad}$$

Tanya has $\underline{\quad}$ bags.

5. The workers on a farm have 7 keys each. There are 21 keys. How many workers are on the farm?

$$21 - 7 = \underline{\quad}$$

$$\underline{\quad} - 7 = \underline{\quad}$$

$$\underline{\quad} \div \underline{\quad} = \underline{\quad}$$

$$\underline{\quad} \div \underline{\quad} = \underline{\quad}$$

There are $\underline{\quad}$ workers.

In 6 and 7, use counters or draw a picture to solve.

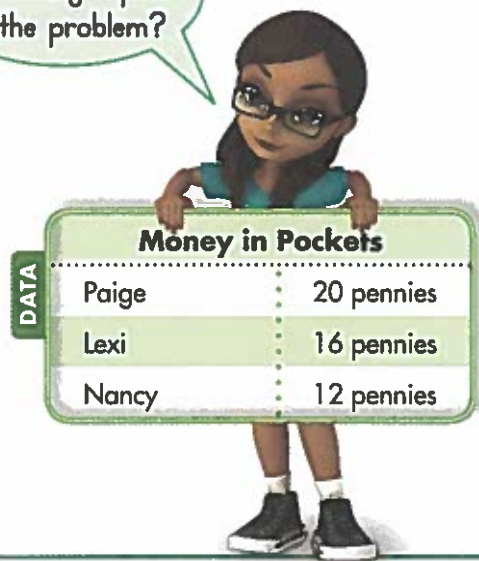
6. Shawna bought 36 markers that came in packages of 4 markers each. How many packages did Shawna buy?

7. James has 16 pencils. He puts 2 pencils on each desk. How many desks are there?

Math Practices and Problem Solving

8. © **MP.8 Generalize** The chart shows the number of pennies each of three friends has in her pocket. Each friend divides her money into piles of 4 coins. Write division equations to show how many equal piles each friend can make. Explain what repeats in the equations and how it helps you solve.

Does something repeat in the problem?



Money in Pockets	
Paige	20 pennies
Lexi	16 pennies
Nancy	12 pennies

9. If Lexi makes 8 columns of pennies, how many rows does she make? Write an equation to model and solve the problem.

10. © **MP.4 Model with Math** Tim has \$45. He spends \$21, then finds \$28. How much money does Tim have now? Use math to represent the problem.

11. **Higher Order Thinking** A bakery plans to make 8 new muffins each year. How many years will it take for the store to make 40 new muffins? Write and solve an equation.

© Common Core Assessment

12. Andy writes the following:

$$8 - 4 = 4$$
$$4 - 4 = 0$$

Which equation could Andy use to represent the same problem?

- (A) $4 \times 4 = 16$
(B) $8 \div 8 = 1$
(C) $8 \div 4 = 2$
(D) $4 \div 2 = 2$

13. Rae writes the following:

$$27 - 9 = 18$$
$$18 - 9 = 9$$
$$9 - 9 = 0$$

Which problem is Rae trying to solve?

- (A) $27 \div 9$
(B) $27 \div 3$
(C) $27 - 9$
(D) 27×3

Name _____



Solve & Share

Find the sum of $327 + 241$. Think about place value. *Solve this problem any way you choose.*

Step Up to Grade 3

Lesson 5 Add with Partial Sums

I can ...
add numbers using partial sums.

© Content Standard 3.NBT.A.2
Mathematical Practices MP.2, MP.3, MP.4



You can use **reasoning** to make a plan. Part of your plan for solving this problem could be to show each of the numbers in expanded form. Show your work in the space below!

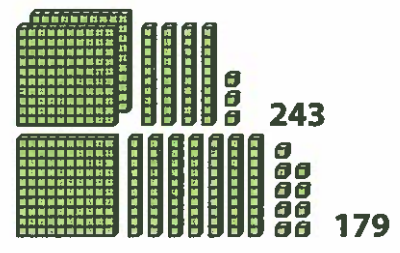
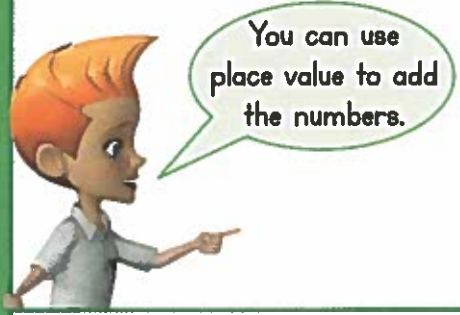
Look Back! © **MP.2 Reasoning** How can using place value help you solve this 3-digit addition problem?

Essential Question

How Can You Break Large Addition Problems into Smaller Ones?

A

Find the sum of $243 + 179$. Each digit in the numbers can be modeled with place-value blocks.



B Step 1

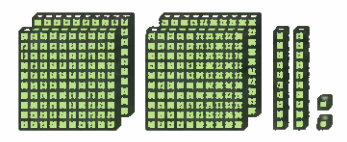
Break $243 + 179$ into smaller problems. Think about the place value of each number.

Hundreds	Tens	Ones
200	40	3
+ 100	+ 70	+ 9
<hr/> 300	<hr/> 110	<hr/> 12

C Step 2

Then, add the sums of all the places.

$$\begin{array}{r} 300 \\ 110 \\ + 12 \\ \hline 422 \end{array}$$



So, $243 + 179 = 422$.

Convince Me! © **MP.3 Construct Arguments** Lexi says, "To solve $243 + 179$, I can just count on with place-value blocks to find the answer: 100, 200, 300, another hundred from the 11 tens is 400, one more ten and 12 ones is 422!" How is Lexi's way like Steps 1 and 2 above?

Name _____

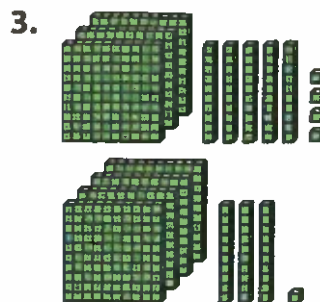
★ Guided Practice

Do You Understand?

1. **MP.2 Reasoning** Suppose you are adding $824 + 106$. What would the tens problem be? Why?
2. Write the smaller problems you could use to find $512 + 362$. What is the sum?

Do You Know How?

In 3, use place value to find the sum.

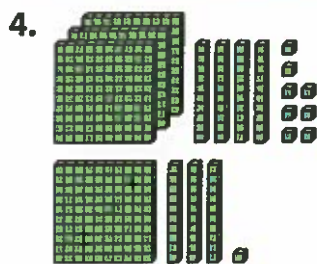


Find $354 + 431$.

Hundreds	Tens	Ones	Total
300	50	4	
<u>+ 400</u>	<u>+ 30</u>	<u>+ 1</u>	

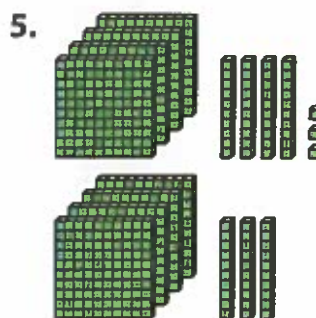
★ Independent Practice

In 4 through 11, find each sum.



$$348 + 131$$

Hundreds	Tens	Ones	Total
300	40	8	
<u>+ 100</u>	<u>+ 30</u>	<u>+ 1</u>	



$$443 + 430$$

Hundreds	Tens	Ones	Total
400	40	3	
<u>+ 400</u>	<u>+ 30</u>	<u>+ 0</u>	

6. $264 + 524$

7. $541 + 276$

8. $249 + 180$

9. $342 + 168$

10. $191 + 502$

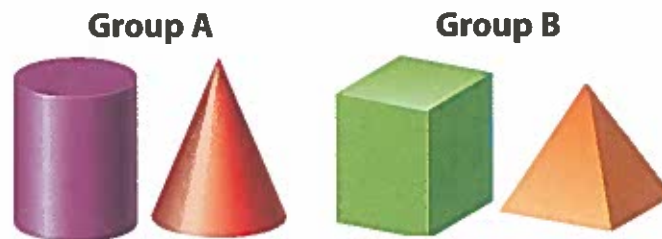
11. $473 + 405$

Math Practices and Problem Solving

12. **MP.3 Critique Reasoning** Henry believes the sum of $345 + 124$ is 479. Is Henry correct? Explain.

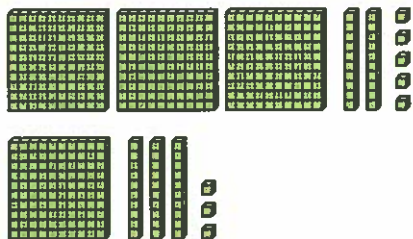


13. **MP.3 Construct Arguments** Explain how the solids shown in Group A and Group B could have been sorted.



14. **MP.4 Model with Math** Bill needs to find $325 + 133$. Into what three smaller problems can Bill break this addition? What is the sum?

You can use place value to add.



15. **Higher Order Thinking** A school cafeteria sells 215 lunches on Monday, 104 lunches on Tuesday, and 262 lunches on Wednesday. Did the cafeteria sell more lunches on Monday and Tuesday or on Tuesday and Wednesday? Explain.

Common Core Assessment

16. Jan read a book with 288 pages. Lara read a book with 416 pages. How many pages did Jan and Lara both read? Solve using partial sums.

- (A) 694
- (B) 704
- (C) 706
- (D) 716

17. Cody wants to add $482 + 315$. He writes $(400 + 300) + (80 + 10) + (2 + 5)$. Which shows the sum of the hundreds, tens, and ones?

- (A) $700 + 90 + 5$
- (B) $700 + 90 + 7$
- (C) $800 + 80 + 5$
- (D) $800 + 60 + 7$

Name _____



Solve & Share

Find the sum of $146 + 247$.

Solve this problem any way you choose.

Step Up to Grade 3

Lesson 6

Models for Adding 3-Digit Numbers

I can ...

add 3-digit numbers using models, drawings, and place value.

Content Standard 3.NBT.A.2
Mathematical Practices MP.3, MP.4, MP.5, MP.8

Model with math.

You can use place-value blocks and draw pictures of the blocks to show how you found the sum. Show your work!

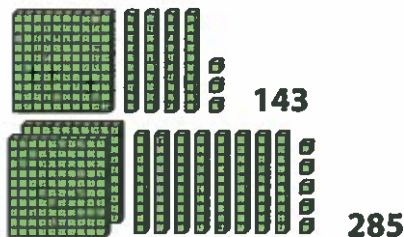


Look Back! © **MP.8 Generalize** When you add numbers, how do you know if you need to regroup?

How Can You Add 3-Digit Numbers with Place-Value Blocks?

A

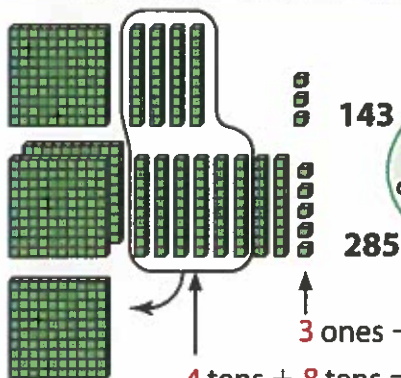
Find $143 + 285$.



You can add whole numbers by using place value to break them apart.

Add the ones, tens, and hundreds.

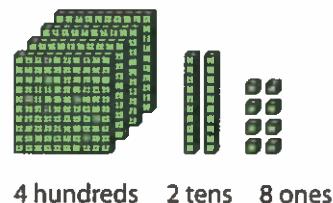
B



When you regroup, you name a whole number in a different way.



C



4 hundreds 2 tens 8 ones

428

$$143 + 285 = 428$$

1 hundred + 2 hundreds + 1 hundred = 4 hundreds ← Add the hundreds.

$$4 \text{ tens} + 8 \text{ tens} = 12 \text{ tens}$$

$$12 \text{ tens} = 1 \text{ hundred } 2 \text{ tens} \leftarrow \text{Regroup.}$$

$$3 \text{ ones} + 5 \text{ ones} = 8 \text{ ones}$$

Convince Me! © MP.4 Model with Math Mr. Wu drove 224 miles yesterday. He drove 175 miles today. Use place-value blocks or draw pictures of blocks to find how many miles Mr. Wu drove.

Another Example!

You may have to regroup twice when you add. Find $148 + 276$.

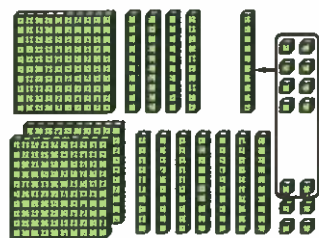
Step 1

Add the ones.

$$8 \text{ ones} + 6 \text{ ones} = 14 \text{ ones}$$

Regroup.

$$14 \text{ ones} = 1 \text{ ten } 4 \text{ ones}$$



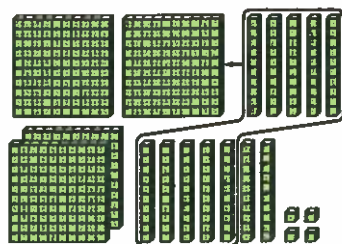
Step 2

Add the tens.

$$1 \text{ ten} + 4 \text{ tens} + 7 \text{ tens} = 12 \text{ tens}$$

Regroup.

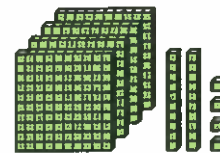
$$12 \text{ tens} = 1 \text{ hundred } 2 \text{ tens}$$



Step 3

Add the hundreds.

$$1 \text{ hundred} + 1 \text{ hundred} + 2 \text{ hundreds} = 4 \text{ hundreds}$$



$$\text{So, } 148 + 276 = 424.$$

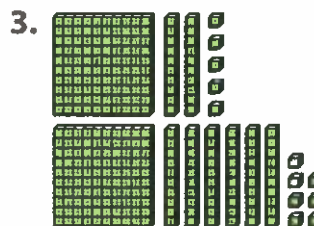
★ Guided Practice

Do You Understand?

1. **MP.8 Generalize** How do you know when you need to regroup?
2. **MP.5 Use Appropriate Tools** Use place-value blocks to find $136 + 279$.

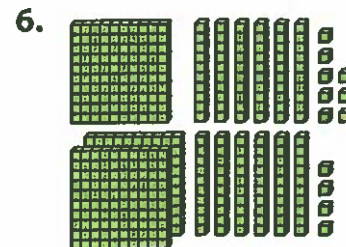
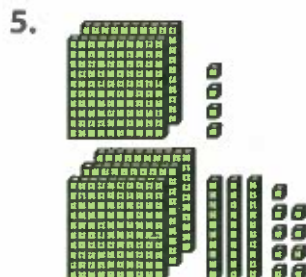
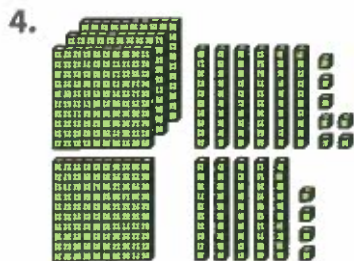
Do You Know How?

In 3, use the model to write the problem and find the sum.



★ Independent Practice

In 4 through 6, write the problem and find the sum.



Math Practices and Problem Solving

7. **MP.4 Model with Math** Juan wants to use place-value blocks to show $148 + 256$. Draw a picture of the blocks Juan should use. What is the sum?

8. **MP.5 Use Appropriate Tools** Manuel plays basketball and scores 15 points in game one, 8 points in game two, and 17 points in game three. How many points did Manuel score? Use the number line to solve the problem.

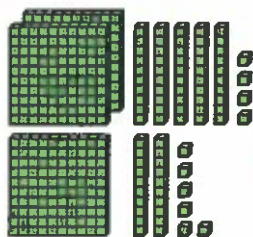


9. **MP.3 Construct Arguments** Al and Mark were playing a computer game. Al scored 265 points in the first round and 354 points in the second round. Mark scored 352 points in the first round and 237 points in the second round. Who scored more points and won the game? Explain.

10. **Higher Order Thinking** Paula is saving money to buy a new computer that costs \$680. Last month she saved \$415, and this month she saved \$298. Does Paula have enough money saved to buy the computer? Use place-value blocks to help you solve the problem. Explain.

Common Core Assessment

11. Write an equation that represents what the place-value blocks show.



You may have to regroup when you find the sum.



12. Mrs. Samuels bought a \$526 plane ticket in May and a \$194 plane ticket in June. Use place-value blocks or draw pictures to find out how much Mrs. Samuels spent on both of the plane tickets.

Name _____



Solve & Share

Find the difference of $534 - 108$. Think about place value. *Solve this problem any way you choose.*

You can use **reasoning**.
How could you break this problem into smaller subtraction problems? Show your work in the space below!



Step Up to Grade 3

Lesson 7

Subtract with Partial Differences

I can ...

subtract numbers using partial differences.

© Content Standard 3.NBT.A.2
Mathematical Practices MP.2, MP.3, MP.4, MP.5, MP.7

Look Back! © **MP.2 Reasoning** How can using place value help you solve this subtraction problem?

How Can You Break Large Subtraction Problems into Smaller Ones?

A

At the end of the fourth round of a game of Digit Derby, Marco's score was 462 points. During the fifth round of the game, Marco loses points. What is Marco's score at the end of the fifth round?

Find $462 - 181$.

End of Round 4

Marco has 462 points.

End of Round 5

Marco loses 181 points.



Place value can help you break a subtraction problem into smaller problems.

B

Step 1

Start with 462.

Subtract the hundreds.

$$462 - 100 = 362$$

So far, 100 has been subtracted.

C

Step 2

Next, start with 362.

Subtract the tens.

You need to subtract 8 tens, but there are not enough tens. So, subtract the 6 tens.

$$362 - 60 = 302$$

Then, subtract the 2 tens that are left.

$$302 - 20 = 282$$

So far, $100 + 60 + 20 = 180$ has been subtracted.

D

Step 3

That leaves just 1 to subtract.

Subtract the ones.

$$282 - 1 = 281$$

$100 + 60 + 20 + 1 = 181$ has been subtracted.

At the end of the fifth round, Marco's score is 281 points.

Convince Me! © MP.7 Use Structure Find $453 - 262$. Use place value to help break the problem into smaller problems. Show your work.



Name _____

★ Guided Practice

Do You Understand?

1. © **MP.3 Construct Arguments** Why do you need to record the numbers you subtract at each step?
2. © **MP.2 Reasoning** Carmella is trying to find $784 - 310$. She decides to start by subtracting 10 from 784. Do you agree with Carmella? Explain.

Do You Know How?

In 3 and 4, use place value to help break the problem into smaller problems.

3. Find $564 - 346$.

$$564 - 300 = \underline{\quad}$$

$$264 - 40 = \underline{\quad}$$

$$224 - 4 = \underline{\quad}$$

$$220 - 2 = \underline{\quad}$$

4. Find $769 - 375$.

$$769 - 300 = \underline{\quad}$$

$$469 - 60 = \underline{\quad}$$

$$409 - 10 = \underline{\quad}$$

$$399 - 5 = \underline{\quad}$$

★ Independent Practice

In 5 through 10, follow the steps to find each difference. Show your work.

5. $728 - 413$

First, subtract 400.

$$\underline{\quad} - \underline{\quad} = 328$$

Then, subtract 10.

$$\underline{\quad} - \underline{\quad} = \underline{\quad}$$

Then, subtract 3.

$$\underline{\quad} - 3 = \underline{\quad}$$

6. $936 - 524$

First, subtract 500.

$$936 - \underline{\quad} = \underline{\quad}$$

Then, subtract 20.

$$\underline{\quad} - 20 = \underline{\quad}$$

Then, subtract 4.

$$\underline{\quad} - \underline{\quad} = \underline{\quad}$$

7. $854 - 235$

First, subtract 200.

$$\underline{\quad} - 200 = \underline{\quad}$$

Then, subtract 30.

$$\underline{\quad} - 30 = \underline{\quad}$$

Then, subtract 4.

$$\underline{\quad} - \underline{\quad} = \underline{\quad}$$

Then, subtract 1.

$$\underline{\quad} - 1 = \underline{\quad}$$

8. $955 - 283$

9. $946 - 507$

10. $984 - 356$

Math Practices and Problem Solving

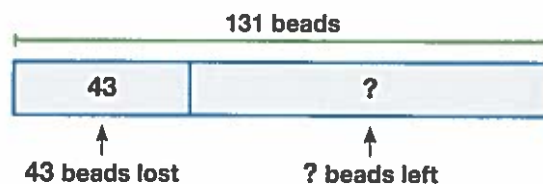
11. © MP.5 Use Appropriate Tools

Write the time shown on the clock in 2 different ways.

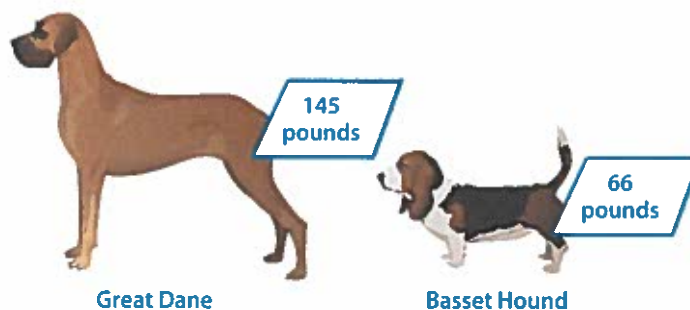


12. © MP.7 Use Structure There are 96 boys and 83 girls in the school lunchroom. Near the end of lunch, 127 students leave. How many students are left in the lunchroom? Show how you can break part of the problem into smaller problems.

13. © MP.4 Model with Math Yuki had a necklace with 131 beads. The string broke, and she lost 43 beads. How many beads does Yuki have left?



14. Higher Order Thinking Which weighs more, two adult male Basset Hounds or one adult male Great Dane? Show the difference in pounds between the two Basset Hounds and the Great Dane. Draw bar diagrams to represent and help you solve the problem.



© Common Core Assessment

15. Karl's book has 416 pages. He read 50 pages last week. He read another 31 pages this week. How many more pages does Karl have left to read?

- (A) 125 (C) 335
 (B) 245 (D) 345

You can break the problem into smaller problems to solve.



Name _____



Solve & Share

Find the difference of $246 - 153$.

Solve this problem any way you choose.



Model with math.
Drawing pictures of place-value blocks is one way to represent this problem and help you solve it.
Show your work!

Step Up to Grade 3

Lesson 8

Models for Subtracting 3-Digit Numbers

I can ...

subtract 3-digit numbers using models, drawings, and place value.

© **Content Standard** 3.NBT.A.2
Mathematical Practices MP.1, MP.4, MP.8

Look Back! © **MP.8 Generalize** How can you check your answer for $246 - 153$?

How Can You Subtract 3-Digit Numbers with Place-Value Blocks?

A

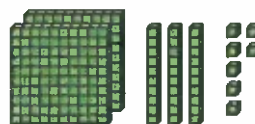
Fish caught near the Hawaiian Islands can be very large. How many more pounds does a broadbill swordfish weigh than a blue marlin?

Find $237 - 165$.

Wild Hawaiian Fish Weights	
Type of Fish	Weight (in lb)
Blue Marlin	165
Broadbill Swordfish	237



Use place value to subtract the ones first, the tens next, and then the hundreds.

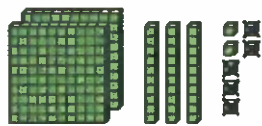


Show 237 with place-value blocks.

B

Subtract the ones.

7 ones $>$ 5 ones,
so no regrouping.



7 ones $-$ 5 ones = 2 ones

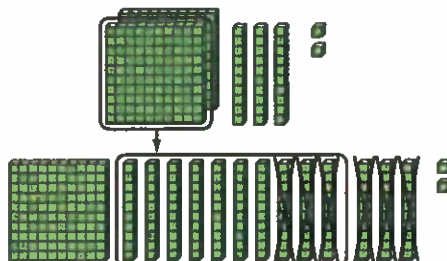
$$\begin{array}{r} 237 \\ - 165 \\ \hline 2 \end{array}$$

C

Subtract the tens.

3 tens $<$ 6 tens,
so regroup.

1 hundred = 10 tens



13 tens $-$ 6 tens = 7 tens

$$\begin{array}{r} 1 \ 13 \\ 2 \ 37 \\ - 165 \\ \hline 72 \end{array}$$

D

Subtract the hundreds.



1 hundred $-$ 1 hundred = 0 hundreds

$$\begin{array}{r} 1 \ 13 \\ 2 \ 37 \\ - 165 \\ \hline 72 \end{array}$$

So, $237 - 165 = 72$.

A broadbill swordfish weighs 72 more pounds than a blue marlin.

Convince Me! © **MP.4 Model with Math** Anderson needs \$231 to buy a new bike. He saved \$144 from his summer job. How much more does Anderson need to save to buy the bike? Write a subtraction equation that models the problem. Use place-value blocks to help you solve the problem using the same steps shown above.

★ Guided Practice

Do You Understand?

1. **MP.8 Generalize** In the example on page 950, for $237 - 165$, why do you need to regroup 1 hundred into 10 tens?
2. **MP.4 Model with Math** Gary saved \$287 doing jobs in his neighborhood. He bought a computer printer for \$183. How much money did Gary have left? Draw a picture of place-value blocks to help you subtract.

Do You Know How?

In 3 through 10, use place-value blocks or draw pictures to subtract.

$$\begin{array}{r} 3. \quad 859 \\ - 768 \\ \hline \end{array}$$

$$\begin{array}{r} 4. \quad 361 \\ - 124 \\ \hline \end{array}$$

$$\begin{array}{r} 5. \quad 285 \\ - 49 \\ \hline \end{array}$$

$$\begin{array}{r} 6. \quad 684 \\ - 482 \\ \hline \end{array}$$

$$7. \quad 384 - 358$$

$$8. \quad 352 - 214$$

$$9. \quad 512 - 101$$

$$10. \quad 999 - 889$$

★ Independent Practice

In 11 through 22, use place-value blocks or draw pictures to subtract.

You can draw squares to show hundreds, lines to show tens, and dots to show ones. This picture shows 123.



$$\begin{array}{r} 11. \quad 651 \\ - 543 \\ \hline \end{array}$$

$$\begin{array}{r} 12. \quad 492 \\ - 138 \\ \hline \end{array}$$

$$\begin{array}{r} 13. \quad 690 \\ - 481 \\ \hline \end{array}$$

$$\begin{array}{r} 14. \quad 508 \\ - 137 \\ \hline \end{array}$$

$$\begin{array}{r} 15. \quad 168 \\ - 39 \\ \hline \end{array}$$

$$\begin{array}{r} 16. \quad 618 \\ - 476 \\ \hline \end{array}$$

$$\begin{array}{r} 17. \quad 419 \\ - 59 \\ \hline \end{array}$$

$$\begin{array}{r} 18. \quad 192 \\ - 108 \\ \hline \end{array}$$

$$\begin{array}{r} 19. \quad 573 \\ - 468 \\ \hline \end{array}$$

$$\begin{array}{r} 20. \quad 596 \\ - 128 \\ \hline \end{array}$$

$$\begin{array}{r} 21. \quad 819 \\ - 124 \\ \hline \end{array}$$

$$\begin{array}{r} 22. \quad 438 \\ - 283 \\ \hline \end{array}$$

Math Practices and Problem Solving

For 23 and 24, use the table at the right.

Think
What do I know?
What do I need to find?



23. How many more miles is it from Cleveland to Chicago than from Cincinnati to Cleveland?
24. © **MP.1 Make Sense and Persevere** Mr. Sousa is driving from Washington, D.C., to Cleveland and then to Cincinnati. He has traveled 182 miles. How many miles are left in his trip?

Trip Distances	
Trip	Miles
Cleveland to Chicago	346
Cincinnati to Cleveland	249
Washington, D.C., to Cleveland	372

25. © **MP.1 Make Sense and Persevere** Which girl got more votes? How many more votes did that girl get?

Student Council President Votes		
	7th Grade Votes	8th Grade Votes
Claudia	183	157
Jasmine	162	156

26. Kendra got \$20 for her birthday. She earned \$62 babysitting. Then she earned \$148 shoveling snow. How much money does Kendra have?



27. **Higher Order Thinking** Kim needs to find $437 - 258$. Will she need to regroup to find the answer? If so, explain how she will need to regroup. What will Kim's answer be?

© Common Core Assessment

28. It is 239 miles from Dallas to Houston and 275 miles from Dallas to San Antonio. How many fewer miles is it from Dallas to Houston than from Dallas to San Antonio?
- (A) 34 fewer miles
(B) 36 fewer miles
(C) 44 fewer miles
(D) 45 fewer miles
29. An amusement park ride can hold 120 people. There are already 104 people on the ride. Which equation shows how many more people the ride can hold?
- (A) $120 - 104 = 16$
(B) $120 - 100 = 20$
(C) $120 - 94 = 26$
(D) $120 + 104 = 224$

Name _____



Solve & Share

Show two different ways to divide a 2×6 region into 6 equal parts. Color the 6 parts of each region a different color. How do you know the parts are equal?

Step Up to Grade 3

Lesson 9

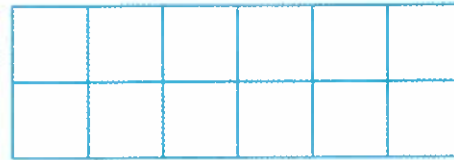
Divide Regions into Equal Parts

I can ...

read and write a unit fraction.

© Content Standards 3.NF.A.1, 3.G.A.2
Mathematical Practices MP.4, MP.6, MP.7

Be precise. Think about each part as you divide the regions.

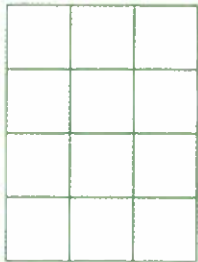


Look Back! © MP.7 Use Structure How are the parts of the regions alike? How are they different?

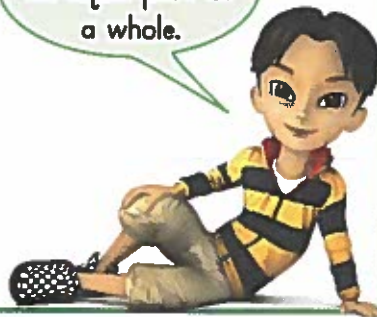
How Can You Name the Equal Parts of a Whole?

A

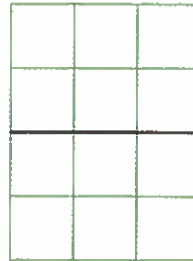
Divide a whole into halves. What fraction can you write to represent one half of a whole?



A fraction is an equal part of a whole.



B

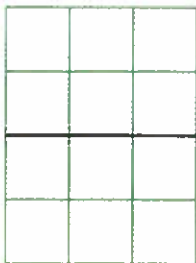


one half

one half

Each part is made up of 6 unit squares. Both parts have equal areas.

C



$\frac{1}{2}$

$\frac{1}{2}$

Each part is **one** half of the area of the whole shape.

This fraction can be written as $\frac{1}{2}$.



$\frac{1}{2}$ is a unit fraction. A unit fraction represents one of the equal parts.

D

The number above the bar in a fraction is called the **numerator**.

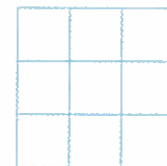
The numerator shows the number of equal parts represented by that fraction.

numerator \longrightarrow $\frac{1}{2}$
denominator \longrightarrow $\frac{1}{2}$

The number below the bar in a fraction is called the **denominator**.

The denominator shows the total number of equal parts in that whole.

Convince Me! © MP.6 Be Precise Divide the grid at the right into thirds. Label each third using a unit fraction. Explain how you knew which fraction to write.



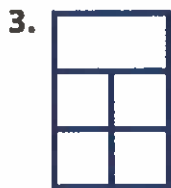
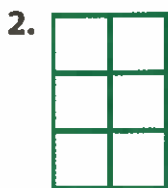
Name _____

★ Guided Practice

Do You Understand?

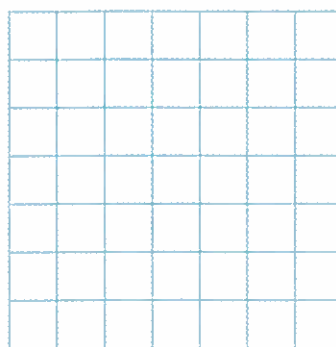
1. In the examples on page 954, explain how you know the two parts are equal.

In 2 and 3, tell if each shows equal or unequal parts. If the parts are equal, label one of the parts using a unit fraction.



Do You Know How?

4. Draw a rectangle that is divided into fourths. Then, write the fraction that represents one equal part.



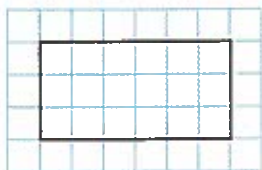
★ Independent Practice

In 5–7, tell if each shows equal or unequal parts. If the parts are equal, name them.

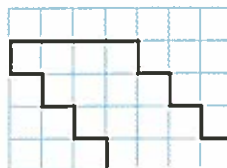


In 8 and 9, draw lines to divide the shape into the given number of equal parts. Then write the fraction that represents one equal part.

8. 3 equal parts







9. 8 equal parts



Math Practices and Problem Solving

In 10–13, use the table of flags.

10. Which nation's flag is $\frac{1}{3}$ white?
11. © **MP.6 Be Precise** What fraction represents the red part of Poland's flag?
12. Which nation's flag does **NOT** have equal parts?
13. Which nation's flag is $\frac{1}{4}$ green?

Nation	Flag
Mauritius	
Nigeria	
Poland	
Seychelles	

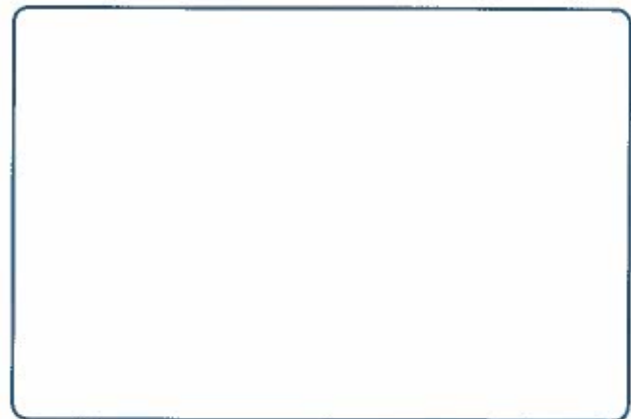
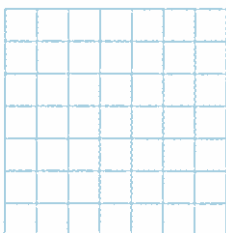
14. © **MP.4 Model with Math** James buys 18 bottles of water. The water comes in packs of 6 bottles. How many packs did he buy? Write an addition equation and a multiplication equation to show your answer.

15. **Higher Order Thinking** Laura's books are shown below. What fraction of her books has a yellow cover?



© Common Core Assessment

16. On the grid below, draw a rectangle. Divide your rectangle into fourths. Explain how you checked the reasonableness of your work.



Name _____



Solve & Share

Pat made a garden in the shape of a rectangle and divided it into 4 same-size parts. She planted flowers in one of the parts. Draw a picture of what Pat's garden might look like.

You can **make sense** of the given information to plan your drawing of Pat's garden.



Step Up to Grade 3

Lesson 10 Fractions and Regions

I can ...

show and name part of a region.

© **Content Standards** 3.NF.A.1, 3.G.A.2
Mathematical Practices MP.1, MP.2, MP.3, MP.4

Look Back! © **MP.3 Construct Arguments** How many parts of Pat's garden do **NOT** have flowers? Explain.

How Can You Show and Name Part of a Region?

A

Mr. Peters served part of a pan of enchilada casserole to a friend. What does each part of the whole pan of casserole represent? What part was served? What part is left?



A fraction is a symbol that names equal parts of a whole. A unit fraction represents one part of a whole that has been divided into equal parts. A unit fraction always has a numerator of 1.



B What You Think

There are 6 equal pieces in the whole, so each piece is $\frac{1}{6}$.

There is 1 piece missing, so one $\frac{1}{6}$ -piece was served.

There are 5 pieces left, so five $\frac{1}{6}$ -pieces are left.

The numerator shows how many equal parts are described. The denominator shows the total number of equal parts in a whole.



C What You Write

$\frac{1}{6}$ ← numerator
← denominator

$\frac{1}{6}$ of the pan of enchilada casserole was served.

$\frac{5}{6}$ of the pan of enchilada casserole is left.

Do You Understand?

Convince Me! © **MP.4 Model with Math** Below is a picture of a pie pan. Draw lines and use shading to show that five $\frac{1}{8}$ -pieces are still in the pan, and that three $\frac{1}{8}$ -pieces were eaten. Remember to draw same-size parts.



★ Guided Practice

Do You Understand?

- In the problem at the top of page 958, what fraction names all of the pieces in the casserole?
- MP.4 Model with Math** Mrs. Rao made a cake. What fraction of the whole cake does each piece represent?



- In the picture in Item 2, how many $\frac{1}{8}$ -pieces were eaten? What fraction of the whole cake was eaten?

Do You Know How?

In 4 through 7, use the figure below.



- Write the unit fraction that represents each part of the whole.
- How many $\frac{1}{3}$ -parts are yellow?
- What fraction of the whole is yellow?
- What fraction names *all* of the parts in the whole?

★ Independent Practice

In 8 through 11, write the unit fraction that represents each part of the whole. Then write the number of blue parts and the fraction of the whole that is blue.



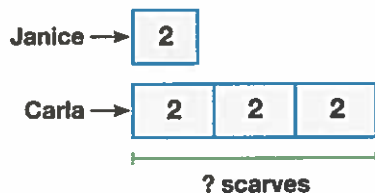
- Draw a rectangle that shows 6 equal parts. Then shade $\frac{3}{6}$ of the rectangle. Explain how you know you shaded $\frac{3}{6}$ of the rectangle.

Math Practices and Problem Solving

13. **MP.2 Reasoning** What is the distance around the baseball card? Write an equation to show and solve the problem.



14. **MP.4 Model with Math** Janice has 2 scarves. Carla has 3 times as many scarves as Janice. How many scarves does Carla have? Use the bar diagram to write and solve an equation.






15. **Higher Order Thinking** Draw a circle that shows 6 equal parts. Shade more than $\frac{3}{6}$ of the circle, but less than $\frac{5}{6}$ of the circle. What fraction have you modeled?

Common Core Assessment

In 16 and 17, use the chart to the right.

16. Kiko and some friends bought a medium party tray. They ate 5 sections of the tray. Which of the following shows the unit fraction, and the fraction of the tray that was **NOT** eaten?

- (A) $\frac{1}{8}, \frac{3}{8}$
- (B) $\frac{1}{6}, \frac{4}{6}$
- (C) $\frac{8}{8}, \frac{2}{8}$
- (D) $\frac{1}{6}, \frac{1}{6}$

Size of Tray	Price
Small 	\$8
Medium 	\$10
Large 	\$12

In a unit fraction the numerator is always 1.

17. Jesse and his friends ordered a large party tray. Which unit fraction does each section of the tray represent?

- (A) $\frac{1}{4}$
- (B) $\frac{1}{6}$
- (C) $\frac{1}{8}$
- (D) $\frac{1}{10}$