COMMON CORE CLINICS

Grade 5

Mathematics

Number, Operations and Algebraic Thinking

Options™

Module 1

Operations and Algebraic Thinking; Number and Operations in Base Ten

1 Write and Interpret Expressions

Key Words

expression
operation signs
parentheses

An **expression** is a combination of numbers and **operation signs** such as $+$, $-$, $\times$, and $\div$. **Parentheses** show which operation to do first. Examples of expressions are:

Expression in Words	Numerical Expression
the sum of 12 and 16	$12 + 16$
the difference of 9 and 4, then multiply by 8	$(9 - 4) \times 8$ or $8 \times (9 - 4)$
divide 350 by 3, then add 1	$(350 \div 3) + 1$ or $1 + (350 \div 3)$

Example

Lyle bought a ticket to a soccer game for $16. He paid with a $20 bill.

Write an expression to show how much change Lyle received.

Write the expression using words.

$20 minus the cost of the ticket
$20 minus $16

Write the expression using numbers.

$20 - 16$

Lyle's change can be shown by the expression $20 - 16$.

LIST

Words such as *sum* and *more* tell you to add.

List two words that tell you to subtract.

List two words that tell you to multiply.

List two words that tell you to divide.

Guided Practice

1 Each box of fruit has 8 apples and 6 oranges. There are 3 boxes of fruit. How much fruit is there in all?

Write an expression to show the total amount of fruit.

THINK

Add the apples and oranges to get the amount of fruit in each box.

Step 1 Write the expression in words.

_____ times the sum of _____ and _____

Step 2 Write an expression using numbers and operation signs.

$\square \times (\square \bigcirc \square)$

REMEMBER

Parentheses show which operation to do first.

The expression is _____.

2 At the Shack, 31 burgers sold in the first hour and 15 burgers sold in each of the next 5 hours. How many burgers were sold in all?

REMEMBER

An expression does not have an equal sign.

Write an expression to show the total number of burgers sold.

Step 1 Write the expression in words.

_____ plus the product of _____ and _____

Step 2 Write an expression using numbers and operation signs.

$\square + (\square \bigcirc \square)$

The expression is _____.

Independent Practice

1. Is $3 \times (4 + 2)$ an expression? Explain why or why not.

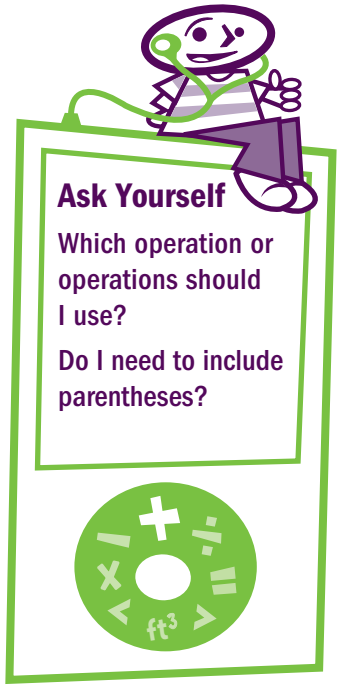
_____

_____

2. When writing an expression, when should you use parentheses?

_____

_____



Write an expression.

3. the difference of 492 and 389 _____

4. the product of 25 and 10 _____

5. 14 plus the product of 12 and 15 _____

6. the quotient of 45 and 9, plus 6 _____

7. add 6 and 12, then divide by 2 _____

8. Dinner costs $24. You give the cashier $30. Write an expression to show the change you will receive.

_____

Write an expression.

9. subtract 36 from 100, then multiply by 8 _____

10. the sum of 382 and 420, divided by 2 _____

11. add 4 and 7, then multiply by 16 _____

12. divide the product of 50 and 3 by 5, then add 2 _____

13. 40 cars divided equally among 5 rows _____

14. 3 trays of ice cubes with 12 cubes per tray, plus 4 cubes gone

_____

15. 20 seats with 2 students per seat and 1 student extra _____

Solve each problem.

16. Tickets to the school play cost $6 per person. The school made $3,168 selling tickets. Write an expression to show how many tickets were sold.

_____

17. On a backpacking trip, Cara hiked 20 miles in two days. The first day she hiked 12 miles. Write an expression to show how many miles Cara hiked the second day.

_____

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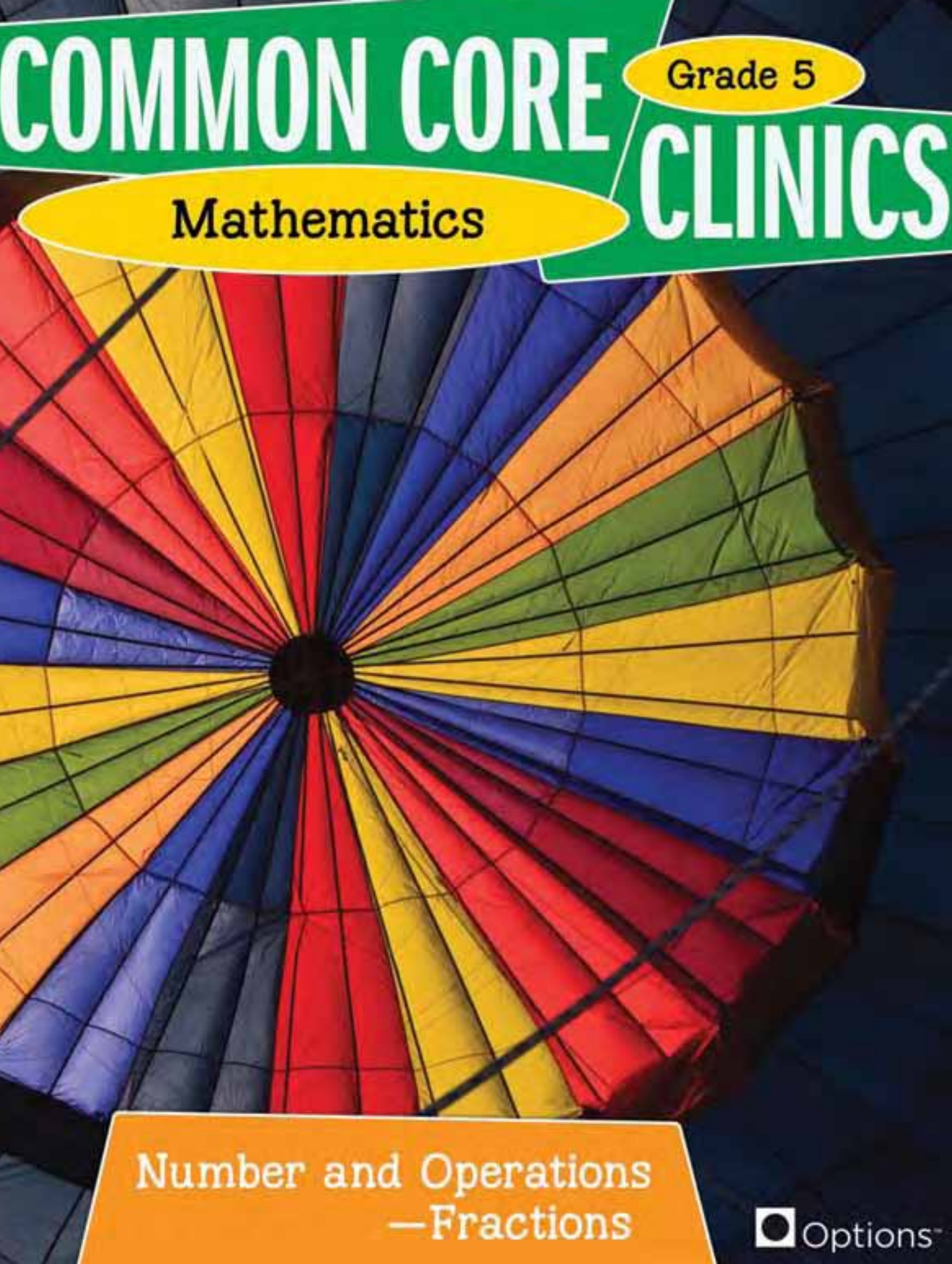


Number and Operations —Fractions

Options

Module 2

Number and Operations–Fractions

1 Equivalent Fractions

Key Words

equivalent fractions
fraction

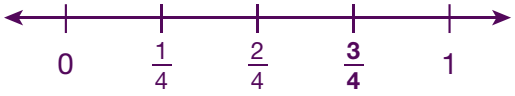
A **fraction** names part of a whole or a group. Fractions that name the same amount are called **equivalent fractions**. You can use number lines to find equivalent fractions.

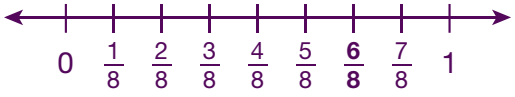
You can also use multiplication or division to find equivalent fractions. Just multiply or divide the numerator and denominator by the same number. Multiplying or dividing the numerator and denominator by the same number is the same as multiplying or dividing by 1, so the value of the fraction is unchanged.

Example 1

Find a fraction equivalent to $\frac{3}{4}$.

Use the number lines. Find a fraction that is the same distance from 0 as $\frac{3}{4}$.





$\frac{6}{8}$ is equivalent to $\frac{3}{4}$.

Example 2

Find a fraction equivalent to $\frac{1}{2}$.

Multiply the numerator and denominator by the same number.

$$\frac{1}{2} = \frac{1 \times 3}{2 \times 3} = \frac{3}{6}$$

$\frac{3}{6}$ is equivalent to $\frac{1}{2}$.

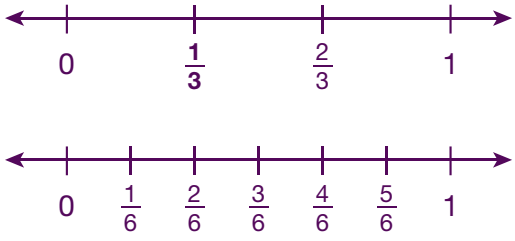
APPLY

Find at least two other fractions equivalent to $\frac{1}{2}$. Explain how you know.

Guided Practice

1 $\frac{1}{3} = \frac{\square}{6}$

Step 1 Use the number lines. Circle the fraction that is the same distance from 0 as $\frac{1}{3}$.



REMEMBER

Equivalent fractions are the same distance from 0 on a number line.

Step 2 Write the numerator of the equivalent fraction.

$\frac{1}{3}$ is equivalent to $\frac{\square}{6}$.

$\frac{1}{3} = \frac{\square}{6}$

2 Find two fractions equivalent to $\frac{4}{6}$.

Step 1 Multiply the numerator and denominator by the same number.

$\frac{4}{6} = \frac{4 \times 2}{6 \times 2} = \frac{\square}{12}$

Step 2 Divide the numerator and denominator by the same number.

$\frac{4}{6} = \frac{4 \div 2}{6 \div 2} = \frac{\square}{3}$

THINK

Multiplying or dividing the numerator and denominator by the same number is like multiplying or dividing by 1.

$\frac{2}{2} = 1$

_____ and _____ are equivalent to $\frac{4}{6}$.

Independent Practice

1. How can you use number lines to find equivalent fractions?

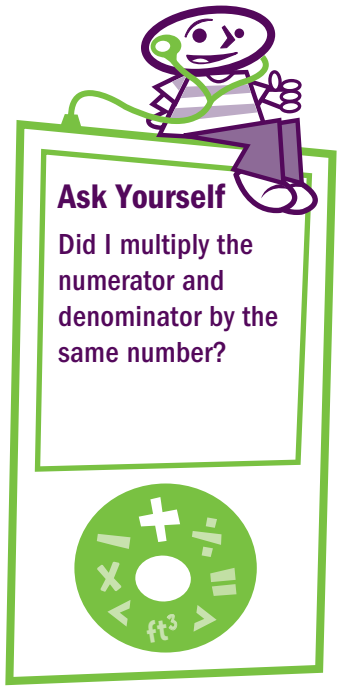
_____

_____

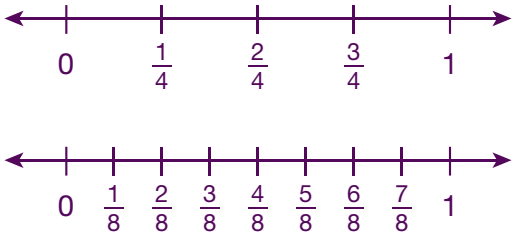
2. How can you use multiplication or division to find equivalent fractions?

_____

_____



Use the number lines to find equivalent fractions. Write the numerator.



3. $\frac{1}{4} = \frac{\square}{8}$ **4.** $\frac{3}{4} = \frac{\square}{8}$ **5.** $\frac{4}{8} = \frac{\square}{4}$

Use multiplication to find an equivalent fraction. Write the numerator or denominator.

6. $\frac{1}{5} = \frac{\square}{10}$ **7.** $\frac{3}{8} = \frac{\square}{16}$ **8.** $\frac{2}{3} = \frac{6}{\square}$

9. For a recipe, Andre needs $\frac{1}{2}$-cup butter. The butter comes in $\frac{1}{4}$-cup sticks. How many $\frac{1}{4}$-cup sticks of butter does he need?

_____

Use multiplication to find an equivalent fraction.

10. $\frac{1}{3} = \_\_\_\_\_$ **11.** $\frac{3}{6} = \_\_\_\_\_$ **12.** $\frac{2}{5} = \_\_\_\_\_$

13. $\frac{3}{5} = \_\_\_\_\_$ **14.** $\frac{2}{7} = \_\_\_\_\_$ **15.** $\frac{3}{4} = \_\_\_\_\_$

16. $\frac{7}{8} = \_\_\_\_\_$ **17.** $\frac{3}{7} = \_\_\_\_\_$ **18.** $\frac{5}{6} = \_\_\_\_\_$

Use division to find an equivalent fraction.

19. $\frac{8}{10} = \_\_\_\_\_$ **20.** $\frac{6}{12} = \_\_\_\_\_$ **21.** $\frac{8}{12} = \_\_\_\_\_$

22. $\frac{2}{14} = \_\_\_\_\_$ **23.** $\frac{5}{15} = \_\_\_\_\_$ **24.** $\frac{2}{10} = \_\_\_\_\_$

25. $\frac{10}{15} = \_\_\_\_\_$ **26.** $\frac{8}{16} = \_\_\_\_\_$ **27.** $\frac{5}{20} = \_\_\_\_\_$

Solve each problem.

Sun-Hee cut a sandwich into sixths. She ate $\frac{1}{3}$ of the slices.

28. How much of the sandwich is left in sixths?

_____

29. How much of the sandwich is left in thirds?

_____

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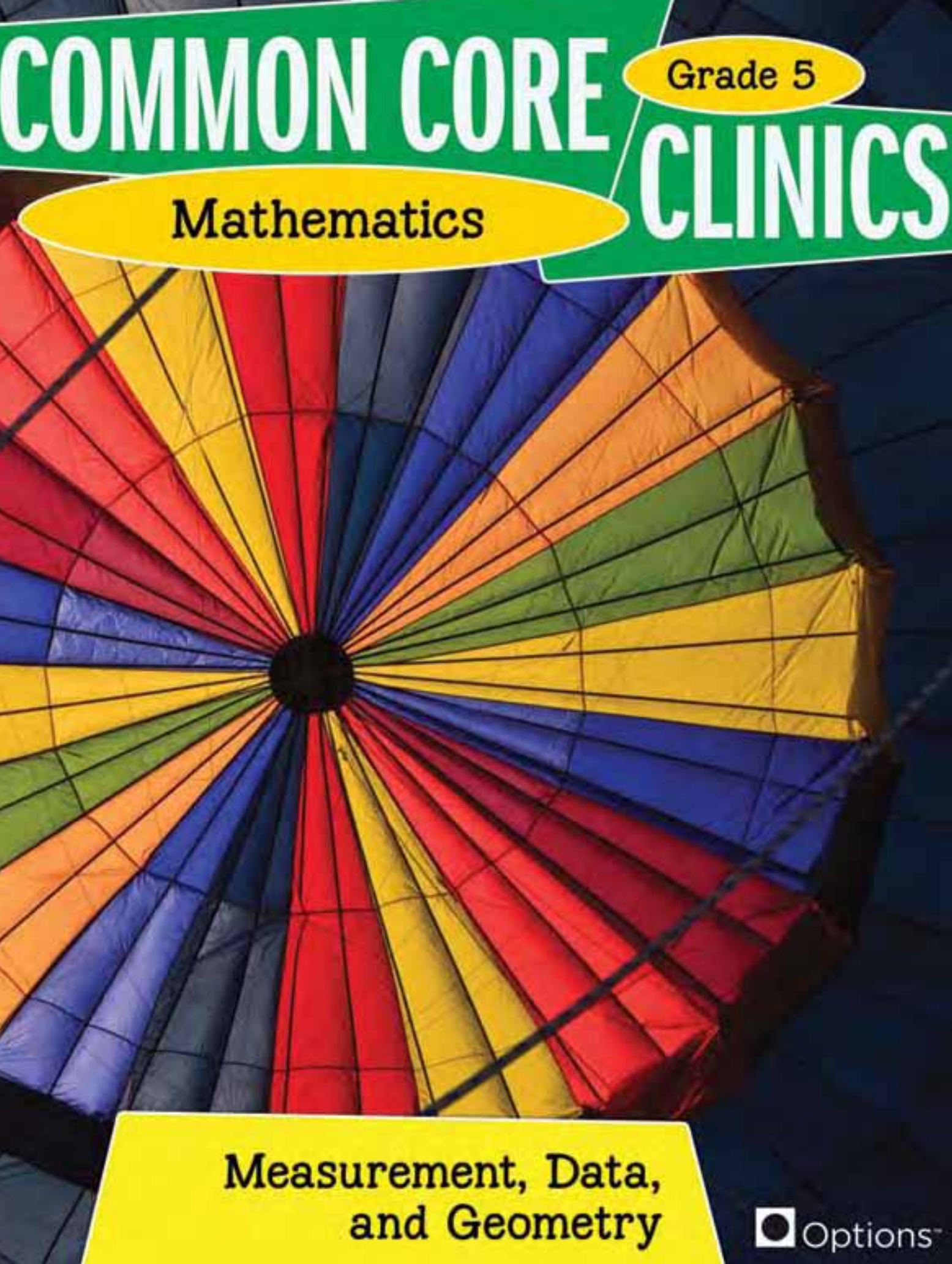


Measurement, Data, and Geometry

Options

Module 3

Measurement, Data, and Geometry

1 Convert Customary Units

Key Words

capacity
customary units
length
weight

Customary units are standard units of measurement used in the United States.

- **Length** is measured in units such as inches, feet, yards, and miles.
- **Weight** is measured in units such as ounces, pounds, and tons.
- **Capacity** is measured in units such as fluid ounces, quarts, and gallons.

To change larger units to smaller units, multiply.

To change smaller units to larger units, divide.

Example

How many inches are in 8 feet 6 inches?

Think: 1 ft = 12 in.

8 ft 6 in. = ☐ in.

To change feet to inches, multiply.

number of feet	×	number of inches in 1 foot	=	number of inches
↓		↓		↓
8	×	12	=	96

To get the total number of inches, add the 6 inches.

$96 + 6 = 102$

8 feet 6 inches = 102 inches

APPLY

How would you find how many ounces are in 3 pounds 2 ounces? (1 lb = 16 oz)

Guided Practice

1 To make costumes for the school play, Mrs. Ruiz needs 28 feet of fabric. How many yards of fabric should she buy? Hint: 1 yd = 3 ft

Step 1 Decide if you should multiply or divide.

To change smaller units to larger units,

_____.

THINK

A foot is smaller than a yard.

I am changing smaller units to larger units.

Step 2 Write the division sentence. Then divide.

28 ÷ _____ = _____ R1

Step 3 Decide what the remainder means

A remainder of 1 means $\frac{1}{3}$ yard.

Step 4 Add the remainder to the quotient.

_____ + $\frac{1}{3}$ = _____

THINK

The quotient is in yards, so the remainder is in yards, too.

3 ft = 1 yd

2 ft = $\frac{2}{3}$ yd

1 ft = $\frac{1}{3}$ yd

Mrs. Ruiz should buy _____ yards of fabric.

2 Liam made 25 quarts of punch for the school picnic. How many cups of punch did he make? Hint: 1 qt = 4 c

Step 1 Decide if you should multiply or divide.

To change larger units to smaller units,

_____.

THINK

A quart is larger than a cup.

I am changing larger units to smaller units.

Step 2 Write the multiplication sentence. Then multiply.

25 × _____ = _____

Liam made _____ cups of punch.

Independent Practice

Use the tables on page 47 to answer the questions on pages 6 and 7.

1. How do you change feet to inches?

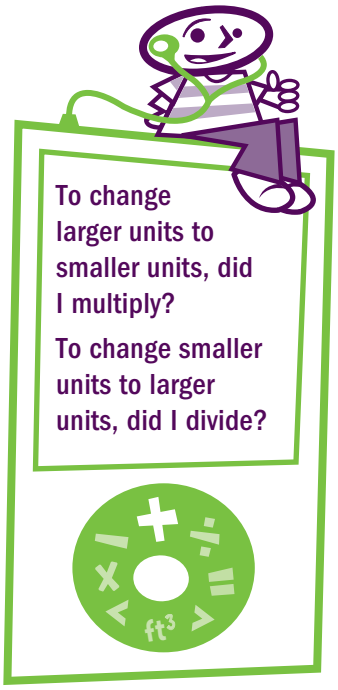
_____

_____

2. How do you change ounces to pounds?

_____

_____



Use what you know about customary units to complete each pattern.

3. 1 ft = 12 in.

2 ft = _____ in.

3 ft = _____ in.

4 ft = _____ in.

5 ft = _____ in.

4. 16 oz = 1 lb

32 oz = _____ lb

48 oz = _____ lb

64 oz = _____ lb

80 oz = _____ lb

5. 1 c = 8 oz

2 c = _____ oz

3 c = _____ oz

4 c = _____ oz

5 c = _____ oz

6 c = _____ oz

6. 3 ft = 1 yd

4 ft = $1\frac{1}{3}$ yd

5 ft = _____ yd

6 ft = _____ yd

7 ft = _____ yd

8 ft = _____ yd

Change the unit.

7. 7 ft = _____ in.

8. 5 gal = _____ qt

9. 4,000 lb = _____ T

10. 36 in. = _____ ft

11. 2 mi = _____ ft

12. 20 ft = _____ yd

13. 72 in. = _____ yd

14. 14 c = _____ qt

15. 100 gal = _____ qt

16. 9,000 lb = _____ T

17. 130 oz = _____ lb

18. 3 yd = _____ in.

19. How many fluid ounces are in $6\frac{1}{2}$ cups? _____

20. How many pounds are in 5 tons? _____

21. How many yards are in 31 ft? _____

22. How many gallons are in 50 qt? _____

Solve each problem.

23. Mr. Johnson bought $9\frac{1}{2}$ gallons of lemonade for the school picnic. How many quarts is that?

_____

24. A truck weighs 4,500 pounds. How many tons is that?

_____

25. A recipe calls for 1 cup of juice in each fruit smoothie. How many cups of juice do you need to make 3 quarts?

_____