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2-1 Fractions and Decimals (pages 62–66)

A decimal that ends, such as 0.335, is a **terminating decimal**.
All terminating decimals are rational numbers. $0.335 = \frac{335}{1{,}000}$

A decimal that repeats, such as 0.333… is a **repeating decimal**.
You can use bar notation to show that the 3 repeats forever. $0.333\ldots = 0.\overline{3}$
All repeating decimals are rational numbers. $0.333\ldots = \frac{1}{3}$

EXAMPLES

A Express $0.\overline{47}$ as a fraction in simplest form.

Let $N = 0.\overline{47}$

Then $100N = 47.\overline{47}$

$-1N = 0.\overline{47}$ *Subtract.*

The result is $99N = 47$. *Divide each side by 99.*

$N = \frac{47}{99}$

B Express 4.5 as a fraction or mixed number in simplest form.

4.5 is 4 and 5 tenths or $\frac{45}{10}$.

The GCF of 45 and 10 is 5.
Divide numerator and denominator by 5.

$\frac{45}{10} = \frac{9}{2}$ *or* $4\frac{1}{2}$.

Try These Together

1. Express 0.757575… using bar notation.
HINT: Write a bar over the digits that repeat.

2. Express 0.4111… using bar notation.
HINT: Which digit repeats?.

PRACTICE

Express each decimal using bar notation.

3. 6.015015015…

4. 8.222…

5. 0.636363…

Write the first ten decimal places of each decimal.

6. $0.\overline{13}$

7. $1.\overline{562}$

8. $3.\overline{498}$

Express each fraction or mixed number as a decimal.

9. $\frac{1}{8}$

10. $\frac{2}{5}$

11. $3\frac{1}{3}$

12. $5\frac{7}{9}$

Express each decimal as a fraction or mixed number in simplest form.

13. 0.96

14. 1.25

15. $0.\overline{8}$

16. $4.\overline{3}$

17. Sales Jack's Suit Shop is having a sale on men's suits. They are $\frac{1}{5}$ off of regular price for one week only. Express $\frac{1}{5}$ as a decimal.

18. **Standardized Test Practice** Brandy is 2.75 times as old as her brother Evan. Express 2.75 as a mixed number.

A $2\frac{7}{9}$ **B** $2\frac{5}{8}$ **C** $2\frac{2}{5}$ **D** $2\frac{3}{4}$

Answers: **1.** $0.\overline{75}$ **2.** $0.4\overline{1}$ **3.** $6.0\overline{15}$ **4.** $8.\overline{2}$ **5.** $0.\overline{63}$ **6.** 0.1313131313 **7.** 1.562562562 **8.** 3.498989899 **9.** 0.125 **10.** 0.4 **11.** $3.\overline{3}$ **12.** $5.\overline{7}$ **13.** $\frac{24}{25}$ **14.** $1\frac{1}{4}$ **15.** $\frac{8}{9}$ **16.** $4\frac{1}{3}$ **17.** 0.2 **18.** D

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2-2 Comparing and Ordering Rational Numbers

(pages 67–70)

One way to compare two rational numbers is to write them with fractions that have the same denominator. You could use any common denominator, but it is usually easiest to use the **least common denominator (LCD)**. The LCD is the same as the LCM of the denominators. You can also write the fractions as decimals and compare the decimals.

EXAMPLES

A Which is greater, $\frac{3}{5}$ or $\frac{2}{3}$?

The LCD is 15.

Rewrite $\frac{2}{3}$ and $\frac{3}{5}$ with the LCD.

$\frac{2}{3} = \frac{10}{15}$

$\frac{3}{5} = \frac{9}{15}$

Since $\frac{10}{15} > \frac{9}{15}$, $\frac{2}{3}$ is greater than $\frac{3}{5}$.

B Which is greater, 0.3 or $\frac{1}{3}$?

Rewrite $\frac{1}{3}$ as the decimal 0.3333… .

0.333… is greater than 0.3.

$\frac{1}{3}$ is greater than 0.3.

Try These Together

1. Find the LCD for $\frac{3}{4}$ and $\frac{2}{3}$.

HINT: What is the LCM of 4 and 3?

2. Find the LCD for $\frac{1}{15}$ and $\frac{3}{5}$.

HINT: What is the LCM of 15 and 5?

PRACTICE

Find the LCD for each pair of fractions.

3. $\frac{5}{6}, \frac{7}{8}$ **4.** $\frac{5}{7}, \frac{9}{10}$ **5.** $\frac{5}{6}, \frac{3}{14}$

Replace each ● with <, >, or = to make a true sentence.

6. $4\frac{4}{5} \bullet 4\frac{7}{10}$ **7.** $\frac{1}{3} \bullet \frac{3}{8}$ **8.** $8.65 \bullet 8\frac{8}{9}$

Order each set of rational numbers from least to greatest.

9. $\frac{1}{8}, \frac{1}{4}, \frac{1}{5}, \frac{1}{9}$ **10.** $\frac{5}{12}, \frac{3}{4}, 0.5, 0.55$ **11.** $-3.5, -3.65, -3\frac{3}{8}, -3\frac{5}{6}$

12. Sports The middle school basketball team won 12 out of their 15 games. The high school volleyball team won 20 out of their 24 games. Which team had the better record?

13. **Standardized Test Practice** Which is greatest, 1.68, 1.6, $1\frac{2}{3}$, or $1\frac{7}{9}$?

A $1\frac{2}{3}$ **B** 1.68 **C** $1\frac{7}{9}$ **D** 1.6

Answers: **1.** 12 **2.** 15 **3.** 24 **4.** 70 **5.** 42 **6.** > **7.** < **8.** < **9.** $\frac{1}{9}, \frac{1}{8}, \frac{1}{5}, \frac{1}{4}$ **10.** $\frac{5}{12}$, 0.5, 0.55, $\frac{3}{4}$ **11.** $-3\frac{5}{6}, -3.65, -3.5, -3\frac{3}{8}$ **12.** the volleyball team **13.** C

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2-3 Multiplying Rational Numbers (pages 71–75)

Use the rules of signs for multiplying integers when you multiply rational numbers.

Multiplying Fractions	To multiply fractions, multiply the numerators and multiply the denominators. $\frac{a}{b} \cdot \frac{c}{d} = \frac{ac}{bd}$, where $b \neq 0$, $d \neq 0$

EXAMPLES

A Find $3\frac{1}{2} \cdot 2\frac{2}{5}$.

$3\frac{1}{2} \cdot 2\frac{2}{5} = \frac{7}{2} \cdot \frac{12}{5}$ *Rename the mixed numbers as improper fractions.*

$= \frac{7}{\cancel{2}_{1}} \cdot \frac{\cancel{12}^{6}}{5}$ *Divide out common factors.*

$= \frac{7 \cdot 6}{1 \cdot 5}$ *Multiply the numerators. Multiply the denominators.*

$= \frac{42}{5}$ or $8\frac{2}{5}$ *Simplify.*

B Find $-\frac{3}{4} \cdot \frac{3}{4}$.

$\frac{-3}{4} \cdot \frac{3}{4} = \frac{-3 \cdot 3}{4 \cdot 4}$ *Multiply the numerators. Multiply the denominators.*

$= -\frac{9}{16}$ *Simplify.*

Try These Together

1. Find $\frac{1}{8} \cdot \frac{4}{7}$.

HINT: Simplify by dividing numerator and denominator by 4.

2. Find $-\frac{2}{3} \cdot \frac{3}{4}$.

HINT: Will the product be positive or negative? Simplify before you multiply.

PRACTICE

Multiply. Write in simplest form.

3. $-4\frac{2}{5} \cdot \left(-\frac{5}{8}\right)$

4. $-\frac{1}{2} \cdot 5\frac{5}{6}$

5. $8\left(-\frac{4}{5}\right)$

6. $1\frac{1}{5} \cdot 3\frac{2}{9}$

7. $3\left(-7\frac{1}{6}\right)$

8. $-\frac{5}{6} \cdot \frac{2}{6}$

Evaluate each expression if $k = 1\frac{1}{2}$, $\ell = -\frac{1}{4}$, $m = 1\frac{5}{6}$, and $n = -\frac{2}{3}$.

9. $k\ell$ **10.** $2m$ **11.** $-mn$ **12.** $\ell(-k)$

13. Fitness Mike and his twin brother ran a $3\frac{1}{6}$-mile relay race. The twins ran $\frac{2}{3}$ of the race. How far did the twins run?

14. **Standardized Test Practice** Solve $-\frac{2}{7} \cdot \frac{1}{4} = x$.

A $-\frac{1}{14}$ **B** $\frac{1}{14}$ **C** $-\frac{3}{28}$ **D** $\frac{3}{28}$

Answers: **1.** $\frac{1}{14}$ **2.** $-\frac{1}{2}$ **3.** $2\frac{3}{4}$ **4.** $-2\frac{11}{12}$ **5.** $-6\frac{2}{5}$ **6.** $3\frac{13}{15}$ **7.** $-21\frac{1}{2}$ **8.** $-\frac{5}{18}$ **9.** $-\frac{3}{8}$ **10.** $3\frac{2}{3}$ **11.** $1\frac{1}{9}$ **12.** $\frac{3}{8}$ **13.** $2\frac{1}{9}$ miles **14.** A

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2-4 Dividing Rational Numbers (pages 76–80)

Dividing by 2 and multiplying by $\frac{1}{2}$ give the same result. Notice that 2 and $\frac{1}{2}$ are **multiplicative inverses**.

Dividing Fractions	To divide by a fraction, multiply by its multiplicative inverse. $\frac{a}{b} \div \frac{c}{d} = \frac{a}{b} \cdot \frac{d}{c}$, where $b, c, d \neq 0$

EXAMPLES

A Find $18 \div \frac{2}{3}$.

Replace dividing by $\frac{2}{3}$ with multiplying by $\frac{3}{2}$.

$18 \div \frac{2}{3} = \frac{18}{1} \cdot \frac{3}{2}$

$= 27$

B Find $3\frac{1}{2} \div -\frac{4}{5}$.

Replace dividing by $-\frac{4}{5}$ with multiplying by $-\frac{5}{4}$.

$3\frac{1}{2} \div -\frac{4}{5} = \frac{7}{2} \cdot -\frac{5}{4}$

$= -\frac{35}{8}$ *or* $-4\frac{3}{8}$

Try These Together

1. Find $11 \div 1\frac{5}{6}$.

HINT: First rename $1\frac{5}{6}$ as an improper fraction.

2. Find $\frac{2}{7} \div \frac{4}{9}$.

HINT: Change dividing by $\frac{4}{9}$ to multiplying by the multiplicative inverse of $\frac{4}{9}$.

PRACTICE

Divide. Write in simplest form.

3. $\frac{3}{4} \div (-12)$

4. $3\frac{1}{4} \div \frac{1}{8}$

5. $-2\frac{2}{5} \div \left(-\frac{3}{10}\right)$

6. $\frac{5}{6} \div 4\frac{3}{4}$

7. $-2\frac{3}{5} \div \left(-\frac{1}{10}\right)$

8. $-9\frac{1}{3} \div 1\frac{5}{6}$

9. $-5\frac{1}{6} \div 1\frac{4}{9}$

10. $8\frac{1}{9} \div 2\frac{2}{3}$

11. $-4\frac{4}{5} \div \frac{7}{10}$

12. $3\frac{1}{2} \div \frac{7}{8}$

13. $-7\frac{3}{7} \div -\frac{4}{7}$

14. $\frac{5}{8} \div 25$

15. Interior Design A hallway that is $4\frac{1}{2}$ feet across has hardwood floors lined with boards that are $2\frac{1}{4}$ inches wide. How many boards fit across the hallway?

16. **Standardized Test Practice** What is $16\frac{1}{4} \div -6\frac{1}{2}$?

A $-2\frac{1}{8}$ **B** $-2\frac{1}{6}$ **C** $-2\frac{1}{2}$ **D** $-2\frac{2}{3}$

Answers: 1. 6 2. $\frac{9}{14}$ 3. $-\frac{1}{16}$ 4. 26 5. 8 6. $\frac{10}{57}$ 7. 26 8. $-5\frac{1}{11}$ 9. $-3\frac{15}{26}$ 10. $3\frac{1}{24}$ 11. $-6\frac{6}{7}$ 12. 4 13. 13 14. $\frac{1}{40}$ 15. 24 16. C

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2-5 Adding and Subtracting Like Fractions

(pages 82–85)

Fractions with like denominators are called **like fractions**.

Adding and Subtracting Like Fractions	• To add fractions with like denominators, add the numerators and write the sum over the denominator. $\frac{a}{c} + \frac{b}{c} = \frac{a+b}{c}, c \neq 0$ • To subtract fractions with like denominators, subtract the numerators and write the difference over the denominator. $\frac{a}{c} - \frac{b}{c} = \frac{a-b}{c}, c \neq 0$

EXAMPLES

A Find $\frac{5}{12} - \frac{1}{12}$.

$\frac{5}{12} - \frac{1}{12} = \frac{5-1}{12}$ *Subtract the numerators.*

$= \frac{4}{12}$ *Simplify.*

$= \frac{1}{3}$

B Find $\frac{4}{7} + \frac{6}{7}$.

$\frac{4}{7} + \frac{6}{7} = \frac{4+6}{7}$ *Add the numerators.*

$= \frac{10}{7}$

$= 1\frac{3}{7}$ *Rename as a mixed number.*

Try These Together

1. Find $\frac{5}{6} - \frac{3}{6}$.

HINT: After you subtract, simplify the fraction.

2. Find $-\frac{9}{10} + \frac{1}{10}$.

HINT: Find the sign of the sum with the same rules you use for adding and subtracting integers.

PRACTICE

Add or subtract. Write in simplest form.

3. $\frac{3}{7} - \left(-\frac{8}{7}\right)$ **4.** $-\frac{4}{9} - \frac{5}{9}$ **5.** $2\frac{1}{3} + 1\frac{2}{3}$

6. $-\frac{6}{11} + \frac{5}{11}$ **7.** $\frac{1}{8} - \left(-\frac{5}{8}\right)$ **8.** $-\frac{1}{5} - \frac{3}{5}$

Evaluate each expression if $x = \frac{5}{12}$ and $y = -\frac{1}{12}$.

9. $y - x$ **10.** $x + y$ **11.** $y - (y + x)$

12. Transportation There is $\frac{5}{6}$ mile between Ming's bus stop and the last stop on the way to school. There is $\frac{1}{6}$ mile between the last stop and school. How many miles does Ming live from school?

13. Standardized Test Practice Solve $n = 1\frac{3}{4} - \left(-\frac{1}{4}\right)$.

A $\frac{3}{4}$ **B** 1 **C** $1\frac{1}{2}$ **D** 2

Answers: 1. $\frac{1}{3}$ 2. $-\frac{4}{5}$ 3. $1\frac{4}{7}$ 4. -1 5. 4 6. $-\frac{1}{11}$ 7. $\frac{3}{4}$ 8. $-\frac{4}{5}$ 9. $-\frac{1}{2}$ 10. $\frac{1}{3}$ 11. $-\frac{5}{12}$ 12. 1 mile 13. D

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2-6 Adding and Subtracting Unlike Fractions

(pages 88–91)

Adding and Subtracting Unlike Fractions	To find the sum or difference of two fractions with unlike denominators, • rename the fractions with a common denominator, • add or subtract, and • simplify if necessary.

EXAMPLES

A Find $\frac{7}{9} - \frac{2}{3}$.

$\frac{7}{9} - \frac{2}{3} = \frac{7}{9} - \frac{6}{9}$ *Rename each fraction using the LCD, 9.*

$= \frac{7-6}{9}$ *Subtract the numerators.*

$= \frac{1}{9}$ *Simplify.*

B Find $2\frac{3}{4} - 3\frac{1}{2}$.

$2\frac{3}{4} - 3\frac{1}{2} = \frac{11}{4} - \frac{7}{2}$ *Write the mixed numbers as fractions.*

$= \frac{11}{4} - \frac{14}{4}$ *Rename using the LCD, 4.*

$= \frac{11-14}{4}$ *Subtract the numerators.*

$= -\frac{3}{4}$ *Simplify.*

Try These Together

1. Find $\frac{1}{5} + \frac{3}{4}$.

HINT: Rename both fractions with a denominator of 20.

2. Find $-\frac{2}{9} + \frac{5}{6}$.

HINT: Rename using the LCD, 18.

PRACTICE

Add or subtract. Write in simplest form.

3. $-3\frac{3}{4} - \frac{5}{6}$

4. $-\frac{3}{8} + \left(-\frac{3}{7}\right)$

5. $5\frac{5}{7} - 4\frac{2}{3}$

6. $8 - 5\frac{1}{5}$

7. $3 - 8\frac{1}{4}$

8. $-5\frac{1}{7} - \frac{1}{6}$

9. $-8\frac{1}{2} - 4\frac{4}{9}$

10. $1\frac{5}{8} + 1\frac{1}{6}$

11. Subtract $-4\frac{1}{6}$ from 2.

12. What is the sum of $-\frac{2}{5}$ and $-\frac{1}{7}$?

Evaluate each expression if $a = -\frac{1}{4}$, $b = 1\frac{2}{3}$, and $c = \frac{4}{9}$.

13. $b - c$

14. $a + b + c$

15. $a - (-c)$

16. Cooking A recipe uses $1\frac{1}{3}$ cups wheat flour and $\frac{1}{4}$ cup wheat germ. What is the sum of these amounts?

17. Standardized Test Practice Solve $t = -1\frac{1}{6} + \frac{2}{5}$.

A $-1\frac{17}{30}$ **B** $-\frac{23}{30}$ **C** $\frac{23}{30}$ **D** $1\frac{17}{30}$

Answers: **1.** $\frac{19}{20}$ **2.** $\frac{11}{18}$ **3.** $-4\frac{7}{12}$ **4.** $-\frac{45}{56}$ **5.** $1\frac{1}{21}$ **6.** $2\frac{4}{5}$ **7.** $-5\frac{1}{4}$ **8.** $-5\frac{13}{42}$ **9.** $-12\frac{17}{18}$ **10.** $2\frac{19}{24}$ **11.** $6\frac{1}{6}$ **12.** $-\frac{19}{35}$ **13.** $1\frac{2}{9}$ **14.** $1\frac{31}{36}$ **15.** $\frac{7}{36}$ **16.** $1\frac{7}{12}$ cups **17.** B

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2-7 Solving Equations with Rational Numbers

(pages 92–95)

You can use the skills you have learned for rational numbers as you solve equations that contain rational numbers.

Solving Equations with Rational Numbers	• To solve an equation, you get the variable alone on one side by using inverse operations. • Reverse the order of operations by undoing addition and subtraction first. • Then undo multiplication and division by doing the same inverse operation on each side. • Check your solution by substituting it for the variable to see if it makes the two sides of the equation equal.

EXAMPLES

A Solve $\frac{a-5}{3} = 7$. Check your solution.

$\frac{a-5}{3} = 7$

$3\left(\frac{a-5}{3}\right) = 3(7)$ *Multiply each side by 3.*

$a - 5 = 21$ *Simplify.*

$a - 5 + 5 = 21 + 5$ *Add 5 to each side.*

$a = 26$ *Simplify.*

Check: Does $\frac{26-5}{3}$ *equal 7? Yes,* $\frac{21}{3} = 7$.

B Solve $-8 - b = 6$. Check your solution.

$-8 - b = 6$

$8 + (-8) - b = 6 + 8$ *Add 8 to each side.*

$-b = 14$ *Simplify.*

$(-1)(-b) = 14(-1)$ *Multiply each side by −1.*

$b = -14$ *Simplify.*

Check: Does $-8 - (-14)$ *equal 6? Yes.*

Try These Together

1. Solve $-15 = -\frac{w}{8}$. Check your solution.

HINT: Multiply each side by 8 and then by −1.

2. Solve $5.8 + j = -7.3$. Check your solution.

HINT: Subtract 5.8 from each side.

PRACTICE

Solve each equation. Check your solution.

3. $2\frac{1}{5}n = 3\frac{3}{10}$

4. $h - (-0.09) = 4.3$

5. $\frac{y}{3} = -3.8$

6. $7g = -35$

7. $2.2 = 0.8 - z$

8. $-s + \frac{1}{4} = \frac{1}{2}$

9. $\frac{9}{10}m - (-7) = -11$

10. $\frac{a-23}{2} = 9.3$

11. $\frac{-27+u}{2} = 8$

12. **Standardized Test Practice** Solve $\frac{2}{5}k = -\frac{8}{9}$.

A $-\frac{16}{45}$ **B** $-\frac{5}{7}$ **C** $-1\frac{1}{8}$ **D** $-2\frac{2}{9}$

Answers: 1. 120 2. −13.1 3. $1\frac{1}{2}$ 4. 4.21 5. −11.4 6. −5 7. −1.4 8. $-\frac{1}{4}$ 9. −20 10. 41.6 11. 43 12. D

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2-8 Powers and Exponents (pages 98–101)

When you multiply two or more numbers, each number is called a **factor** of the product. When the same factor is repeated, you can use an **exponent** to simplify the notation. An exponent tells you how many times a number, called the **base**, is used as a factor. A **power** is a number that is expressed using exponents.

Example of a Power	$5^4 = 5 \times 5 \times 5 \times 5$	five to the fourth power
Zero and Negative Exponents	**Words**	Any nonzero number to the zero power is 1. Any nonzero number to the negative *n* power is 1 divided by the number to the *n*th power.
	Symbols	**Arithmetic** / **Algebra**
		$5^0 = 1$ / $x^0 = 1, x \neq 0$
		$7^{-3} = \frac{1}{7^3}$ / $x^{-n} = \frac{1}{x^n}, x \neq 0$

EXAMPLES

A Write $4 \cdot 4 \cdot 7 \cdot 4 \cdot 7$ using exponents.

Use the commutative property to rearrange the factors. Then use the associative property to group them.

$4 \cdot 4 \cdot 4 \cdot 7 \cdot 7 = (4 \cdot 4 \cdot 4) \cdot (7 \cdot 7) = 4^3 \cdot 7^2$

B Evaluate 6^4.

$6^4 = 6 \cdot 6 \cdot 6 \cdot 6$
$= 36 \cdot 36$
$= 1{,}296$

Try These Together

1. Write $5 \cdot 5 \cdot 5$ using exponents.
HINT: How many times is each factor used?

2. Evaluate 2^3.
HINT: Write each power as a product.

PRACTICE

Write each expression using exponents.

3. $8 \cdot 8 \cdot 8 \cdot 8$
4. $1 \cdot 1$
5. $7 \cdot 7 \cdot 6 \cdot 6$
6. $2 \cdot 2 \cdot 2 \cdot 4 \cdot 4$
7. $10 \cdot 10 \cdot 9 \cdot 9 \cdot 9$
8. $a \cdot a \cdot a \cdot b$

Evaluate each expression.

9. 9^1
10. 3^{-5}
11. $1^3 \cdot 2^4$
12. $6^2 \cdot 4^3$
13. $3^3 \cdot 2^2 \cdot 4^1$
14. 5^{-2}

15. Sports The Tour de France is one of the most difficult bicycle races in the world. Cyclists ride about 3.2×10^3 kilometers through France's countryside and mountains. Express this number without exponents.

16. **Standardized Test Practice** How can $8 \cdot 8 \cdot 8 \cdot p \cdot p \cdot 3$ be written using exponents?

A $3^p \cdot 64 \cdot p$ **B** $6^4 \cdot p^2 \cdot 3$ **C** $8^3 \cdot p^2 \cdot 3$ **D** $8^2 \cdot p^3 \cdot 3$

Answers: **1.** 5^3 **2.** 8 **3.** 8^4 **4.** 1^2 **5.** $7^2 \cdot 6^2$ **6.** $2^3 \cdot 4^2$ **7.** $10^2 \cdot 9^3$ **8.** $a^3 \cdot b$ **9.** 9 **10.** $\frac{1}{243}$ **11.** 16 **12.** 2,304 **13.** 432 **14.** $\frac{1}{25}$ **15.** 3,200 **16.** C

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2-9 Scientific Notation (pages 104–107)

When a number is written in scientific notation, it is expressed as the product of a number between 1 and 10 and a power of 10.

Converting Scientific Notation to Standard Form	• Multiplying by a positive power of 10 moves the decimal point to the right the number of places shown by the exponent. • Multiplying by a negative power of 10 moves the decimal point to the left the number of places shown by the absolute value of the exponent.

EXAMPLES

A Write 4.6×10^{-3} in standard form.

The exponent is negative so move the decimal point 3 places to the left.

$4.6 \times 10^{-3} = 0.0046$

B Write 89,450 in scientific notation.

Move the decimal to make a number between 1 and 10. 8.9450

You moved the decimal point 4 places, so $89{,}450 = 8.945 \times 10^4$.

Try These Together

1. Write 4.5×10^3 in standard form.

HINT: Move the decimal point 3 places to the right.

2. Write 1.201×10^5 in standard form.

HINT: Move the decimal point to the right.

PRACTICE

Write each number in standard form.

3. 3.65×10^{-2} **4.** 21.549×10^{-3} **5.** 2.3×10^6

6. 8.95×10^{-4} **7.** 10.567×10^8 **8.** 0.505×10^3

Write each number in scientific notation.

9. 1,200 **10.** 4,000,000 **11.** 0.00015 **12.** 0.0148

13. 30,300 **14.** 0.0000068 **15.** 0.000547 **16.** 702,000

17. Space Science Some satellites orbit Earth at a specific altitude that lets them stay above one point on Earth's equator at all times. This is called a geostationary equatorial orbit and is about 35,800 kilometers above Earth. Express this number in scientific notation.

18. **Standardized Test Practice** When the space shuttle returns to Earth's atmosphere, it needs to withstand tremendous heat. 2.4×10^4 special tiles are installed by hand to help protect the shuttle from this heat. What is 2.4×10^4 in standard form?

A 24,000 **B** 2,400 **C** 240,000 **D** 240

Answers: **1.** 4,500 **2.** 120,100 **3.** 0.0365 **4.** 0.021549 **5.** 2,300,000 **6.** 0.000895 **7.** 1,056,700,000 **8.** 505 **9.** 1.2×10^3 **10.** 4×10^6 **11.** 1.5×10^{-4} **12.** 1.48×10^{-2} **13.** 3.03×10^4 **14.** 6.8×10^{-6} **15.** 5.47×10^{-4} **16.** 7.02×10^5 **17.** 3.58×10^4 **18.** A

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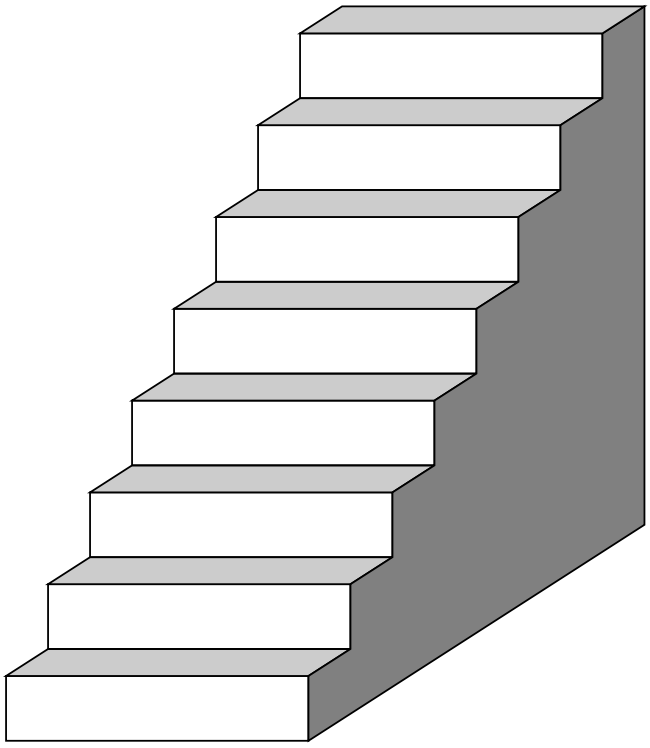
2 Chapter 2 Review

Rational Stairway

Climb a stairway made out of the following list of rational numbers. Solve if necessary, then place the rational numbers in order from least to greatest on the stairs from bottom to top.



1. $\frac{3}{11} + \frac{5}{11}$

2. $11\frac{1}{3} - 6\frac{2}{3}$

3. $-5.\overline{3}$

4. 4.7

5. $\frac{24}{120}$

6. $\frac{1}{3} \cdot 2\frac{1}{3}$

7. 2.03×10^{-1}

8. $\frac{19}{4}$

Answers are located on page 108.